National Weather Service

Storm Spotter Training

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NWS-Tallahassee

Presentation Topics

- National Weather Service overview, mission, and products
- Basic Storm Definitions
- What to report and what makes a good report
- Severe weather climatology
- Thunderstorm components common to the Southeast
- Tornado Look alikes
- A case study on severe weather
- Threat Assessment
- Weather Safety

Your National Weather Service

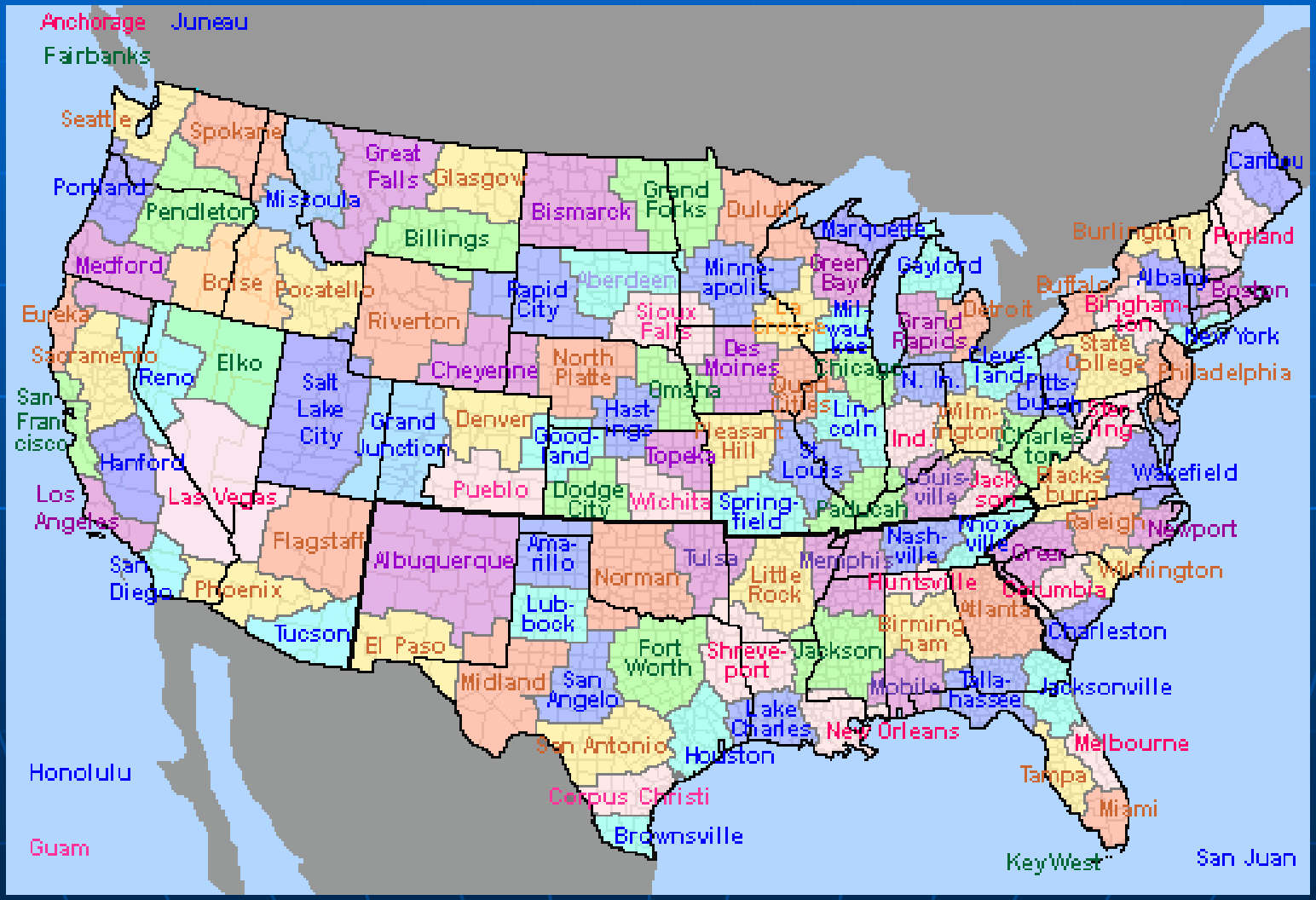
The National Weather Service (NWS) is part of the National Oceanic & Atmospheric Administration (NOAA), which is within the Department of Commerce.

Our mission: The NWS provides weather, hydrologic, and climate forecasts and warnings for the United States, its territories, adjacent waters and ocean areas, for the protection of life and property and the enhancement of the national economy. NWS data and products form a national information database and infrastructure which is used by other governmental agencies, the private sector, the public, and the global community.

www.noaa.gov

www.weather.gov

Your source for official weather information
123 offices serving America & surrounding territories



National Weather Service county warning areas

Sources of Weather Information

- **NOAA Weather Radio** - Your fastest link to vital information 24 hours/day
  - www.weather.gov/nwr
- **The Internet** - Your official source for reliable and accurate weather information
  - www.weather.gov
- **EMWIN** - Emergency Management Weather Information Network
  - A suite of data access methods which make available a live stream of weather and other critical emergency information
  - http://iwin.nws.noaa.gov/emwin/index.html
- **Commercial or cable television** – You can tune to your local or cable TV station to receive National Weather Service watches/warnings/advisories
- **Commercial radio** – LP1 stations broadcast all tornado, severe thunderstorm, and flash flood warnings.

National Weather Service Weather Forecast Office

Tallahassee, FL

weather.gov

Home | Site Map | News | Organization | Search for: NWS All NOAA Go

Local forecast by "City, St" or Zip Code

City, St Go

XML RSS Feeds

- Current Hazards
  - Local
  - Nationwide
  - Outlooks
  - Graphical
  - Storm Reports
  - Past Events
- Forecasts
  - Local
  - Forecast Discussion
  - Activity Planner
  - Graphical
  - Tropical Weather
  - Fire Weather
  - Aviation Weather
  - Marine Weather
- Current Weather
  - Observations
  - Satellite Images
  - Rivers/Lakes
  - Precip Estimates
  - Hydrology
  - Marine Observations
  - Florida Weather
  - Georgia Weather
  - Alabama Weather
- Radar Imagery
  - Nationwide
  - Local Radars
- Climate
  - Local
  - National

Top News of the Day

- The 2009-10 Winter Season Was One of the Coldest & Wettest on Record
- Local Spring Flood Potential Outlook
- Changes to NWS Hydrologic Services Web Pages
- WFO Tallahassee Zone Changes

Watches & Warnings | Observations | Forecast Graphics | Rivers & Lakes | Climate | Graphicast

Click on the map below for the latest forecast.

Last map update: Tue, Mar. 9, 2010 at 11:35:00 am EST

Read watches, warnings & advisories | Zoom Out

Flood Warning

Hazardous Weather Outlook

Latest Conditions in Tallahassee, FL

Mar 9
10:53 am

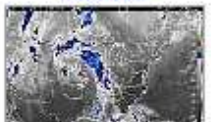
Mostly Cloudy

60°F
(16°C)

Choose Your Front Page City

Select A City:

Graphical Forecasts | Radar | Satellite | Weather Map



Your Official Weather Source

Your National Weather Service forecast

Tallahassee FL

Enter Your "City, ST" or zip code Go BOOKMARK

NWS Tallahassee, FL
Point Forecast: Tallahassee FL
30.47°N 84.25°W (Elev. 98 ft)

Mobile Weather Information | En Español
Last Update: 10:08 am EST Mar 9, 2010
Forecast Valid: 12pm EST Mar 9, 2010-6pm EDT Mar 15, 2010

Forecast at a Glance

This Afternoon	Tonight	Wednesday	Wednesday Night	Thursday	Thursday Night	Friday	Friday Night	Saturday
								
30%	40%	60%	80%	70%	50%	50%	20%	
Chance Showers	Chance Rain	Tstms Likely	Showers	Tstms Likely	Chance Rain	Chance Rain	Slight Chc Showers	Partly Sunny
Hi 67 °F	Lo 49 °F	Hi 72 °F	Lo 57 °F	Hi 75 °F	Lo 58 °F	Hi 76 °F	Lo 49 °F	Hi 68 °F

Detailed 7-day Forecast

This Afternoon: A 30 percent chance of showers. Mostly cloudy, with a high near 67. South southeast wind around 10 mph.

Tonight: A 40 percent chance of rain after 1am. Cloudy, with a low around 49. South southeast wind around 5 mph.

Wednesday: Rain likely, with thunderstorms also possible after 1pm. Cloudy, with a high near 72. South southeast wind between 5 and 15 mph. Chance of precipitation is 60%. New rainfall amounts between a tenth and quarter of an inch, except higher amounts possible in thunderstorms.

Wednesday Night: Showers and possibly a thunderstorm. Low around 57. South southeast wind between 10 and 15 mph. Chance of precipitation is 80%.

Thursday: Showers likely and possibly a thunderstorm before 1pm, then a chance of showers and thunderstorms

Current Conditions [Move Down]

view Yesterday's Weather

Tallahassee Regional Airport
Lat: 30.4 Lon: -84.35 Elev: 69
Last Update on Mar 9, 10:53 am EST

Mostly Cloudy

60 °F (16 °C)

Humidity:	56 %
Wind Speed:	E 5 MPH
Barometer:	30.09" (1018.6 mb)
Dewpoint:	44 °F (7 °C)
Visibility:	10.00 mi.
More Local Wx:	3 Day History:

Radar and Satellite Images

County Specific Information:

*** Hazardous Weather Outlook**

***Watches**

***Warnings**

*** Severe Weather Statements**

***Short Term Forecasts**

NOAA ALL Hazards Weather Radio

http://www.srh.noaa.gov/tae/nwr.php

Broadcasts are found in the public service band at these seven broadcast frequencies (MHz):

162.400 MHz	162.425 MHz	162.450 MHz	162.475 MHz	162.500 MHz	162.525 MHz	162.550 MHz

NOAA Weather Radio

Important Definitions

- **Watch** - Atmospheric conditions are favorable (or could become favorable) for the development of thunderstorms which could produce severe weather – remain alert.
- **Warning** - Severe weather has occurred or is likely to occur – take protective action.

Tornado Warning Criteria

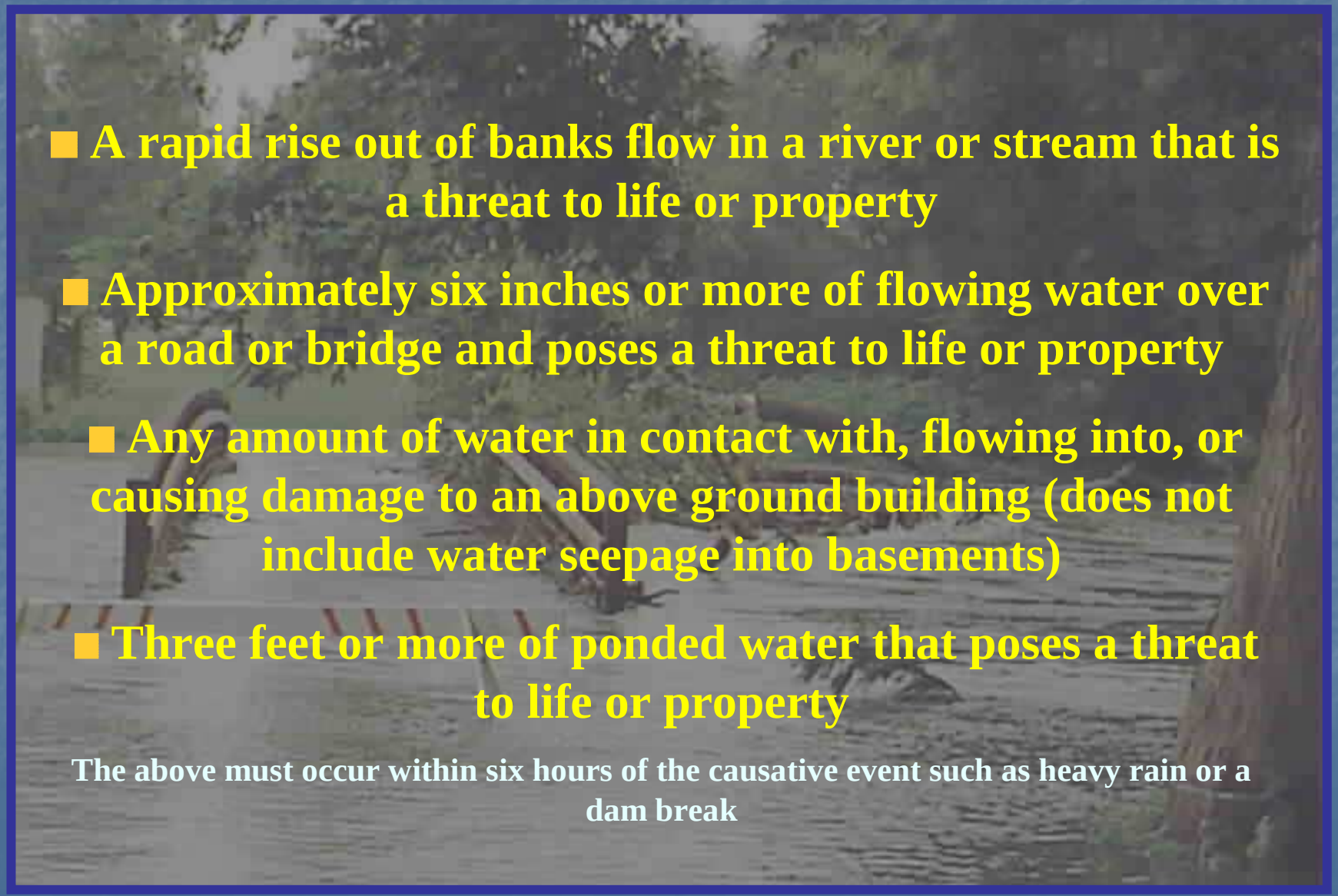
A tornado is occurring, a verified funnel cloud is reported and the NWS believes it could develop on the ground, or radar indicates a thunderstorm capable of producing a tornado.

Severe Thunderstorm Criteria

wind 58 mph or greater

1 inch or larger hail

Flash Flood Warning Criteria



- A rapid rise out of banks flow in a river or stream that is a threat to life or property
- Approximately six inches or more of flowing water over a road or bridge and poses a threat to life or property
- Any amount of water in contact with, flowing into, or causing damage to an above ground building (does not include water seepage into basements)
- Three feet or more of ponded water that poses a threat to life or property

The above must occur within six hours of the causative event such as heavy rain or a dam break

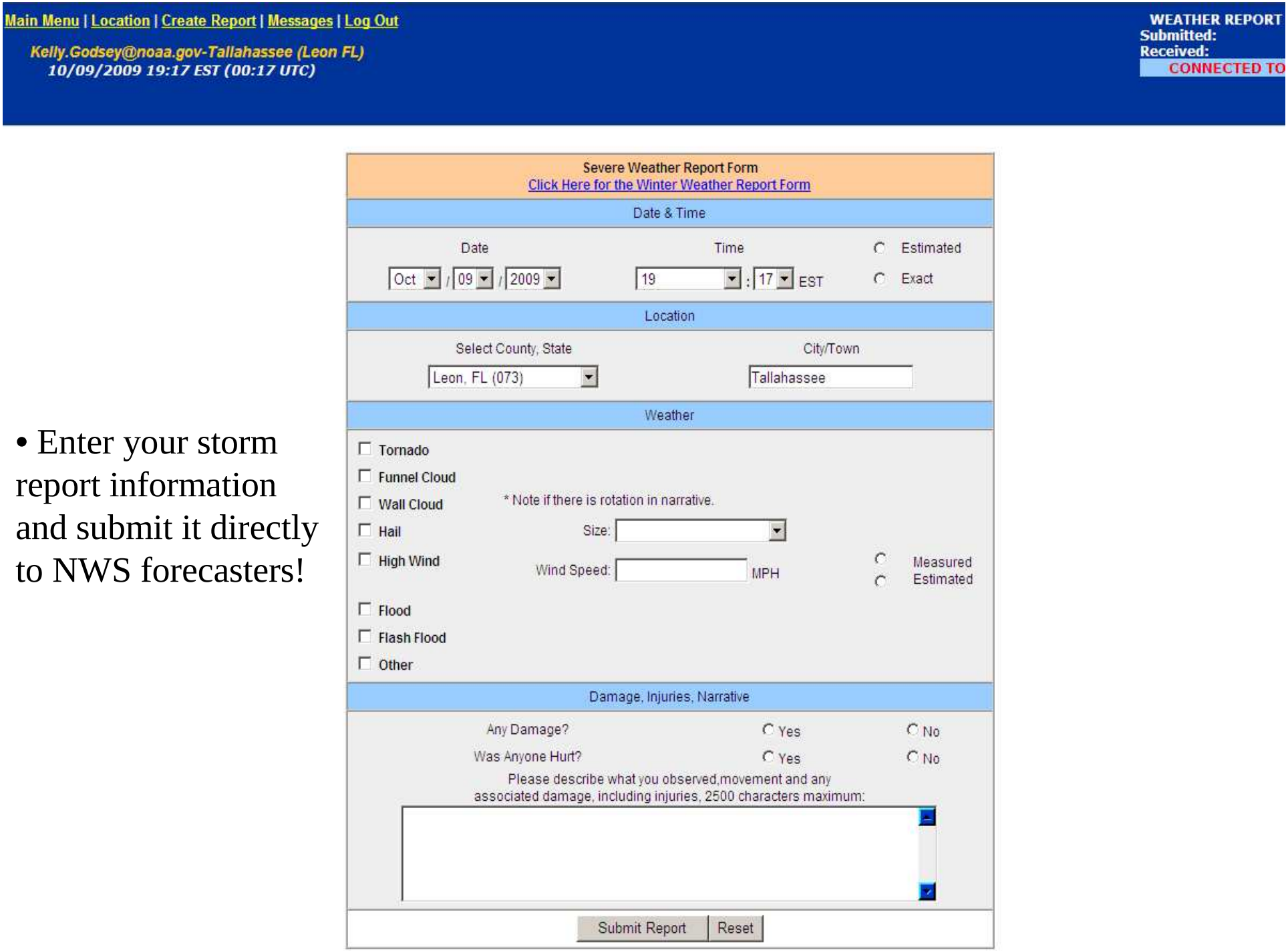
The Effective Spotter Report

Best

The Effective Spotter Report

- **Call your NWS office via phone 800-598-4562 or 850-942-8833**
- **State source of report (your identity, i.e. trained spotter)**
- **Give your exact location (and location relative to the event)**
- **State the start & end time of the event (be sure to differentiate between *event* time & *report* time)**
- **Give an event description (be as specific and detailed as possible)**
- **If event is still occurring, provide frequent updates**
- **Give as reliable information as possible. Do not embellish**

Your storm report can also be sent to the NWS via the Internet.



- Enter your storm report information and submit it directly to NWS forecasters!

Estimating Wind Speed

THE "SET" EFFECT.....

Storm spotters must also keep in mind that during a severe weather event, Stress, Excitement, and Tension levels are running high. This is called the "SET" effect, and it can alter your logic and reasoning abilities. Because of its presence, it is often very easy to over-estimate wind speeds.

A wind gust of 40 MPH during a fair weather day will not cause any great concern, but this same wind speed when experienced during a thunderstorm may seem like 60 MPH gust because of the SET effect.

When in doubt about your estimate, re-think it and try to remain calm and objective as possible. Use the table in the previous slide as a guide. Your goal is to pass real time observations with accuracy, speed, and professionalism.

Estimating Wind Speed

25-31 mph - large branches in motion

32-38 mph – whole trees in motion

39-54 mph – twigs break off, wind impedes walking

55-72 mph – damage to chimneys and TV antennas, large branches broken and some trees uprooted

73-112 mph – removes shingles, windows broken, trailer houses overturned, trees uprooted

113+ mph – roofs torn off, weak buildings and trailer houses destroyed, large trees uprooted

What To Report

Tornado, Funnel Cloud, or Wall Cloud

What To Report

Strong or Damaging Wind

What To Report

Hail

What To Report

What To Report

Any Storm Damage

What To Report

Urban Flooding

What To Report

Rural Flooding

What To Report

Past Water/Flood Damage

What Makes a Good Report?

Caller #1: "I was just calling to report that a severe thunderstorm just moved through my neighborhood. It was windy and there was lots of lightning and heavy rain."

Caller #2: "We just had a severe thunderstorm move through our neighborhood in Thomasville. We have several large trees down in the road and I also see quarter size hail on the ground."

One of these reports is better than the other. Why?

What Makes a Good Report?

Caller #1: "I was looking out my window toward the south and I saw a tornado. The clouds were really dark and hanging near the ground."

Caller #2: "We definitely had a funnel cloud move overhead. You could see the cloud base rotating with a funnel extending down. It wasn't on the ground yet. I lost sight of it a few minutes ago."

One of these reports is better than the other. Why?

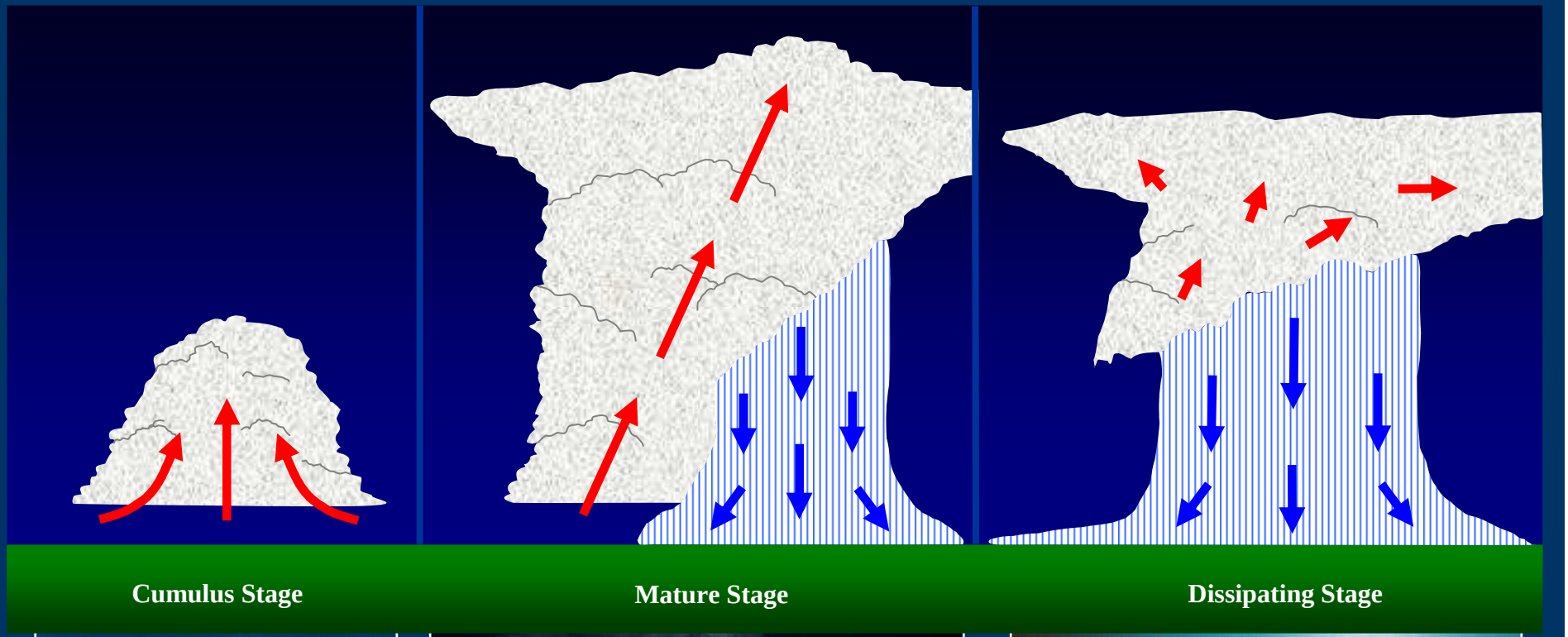
What Makes a Good Report?

Caller #1: "I live in Quitman and there was quarter size hail falling downtown. A large oak tree also fell. There was very heavy rain for about 20 minutes, but I haven't seen any flooding in town."

Caller #2: "I tell you what. If you don't have a warning out, you are crazy. That storm was terrible. The rain was just pounding on my window and it didn't stop lightning for like five minutes."

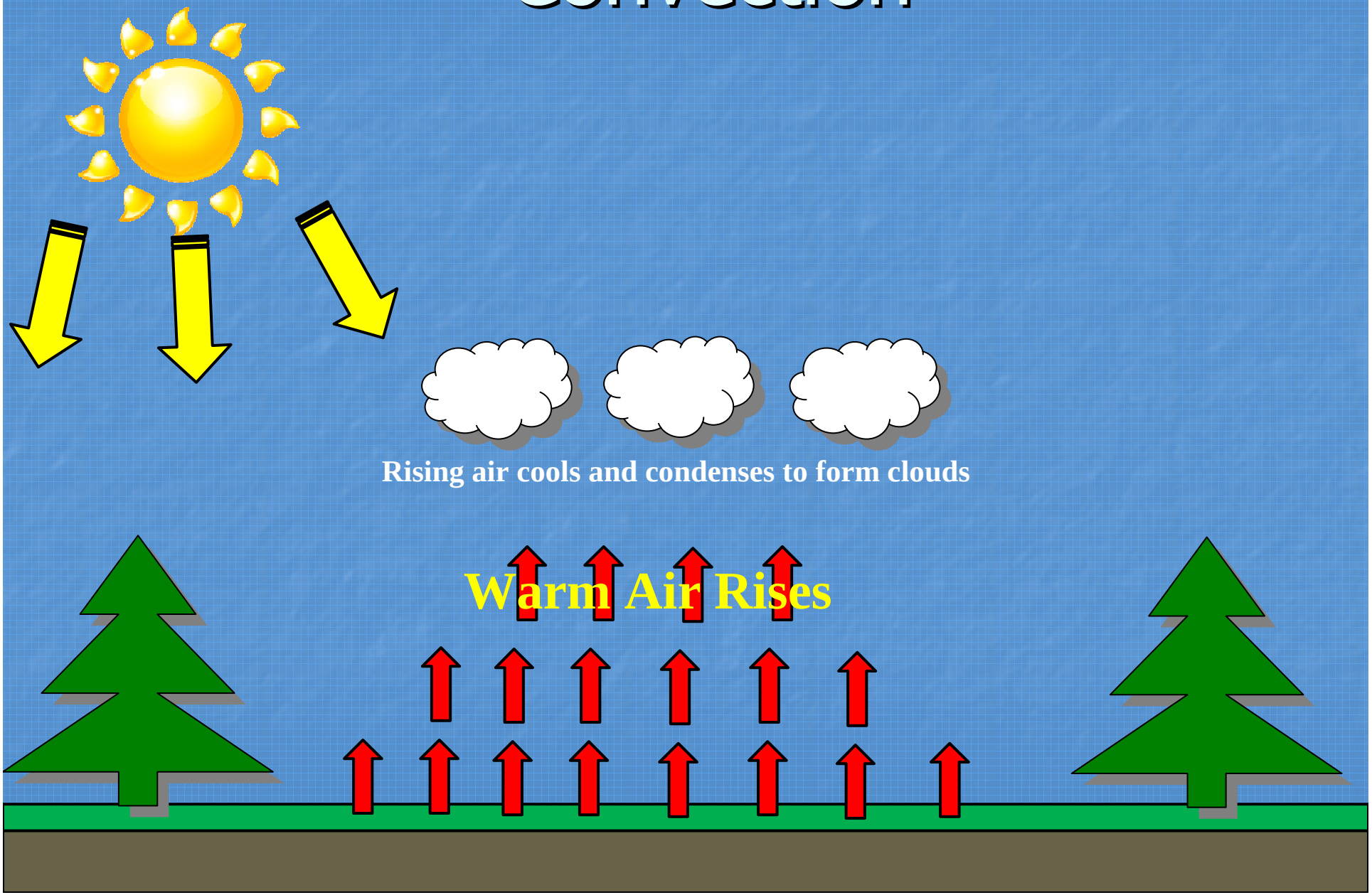
One of these reports is better than the other. Why?

Thunderstorm Life Cycle

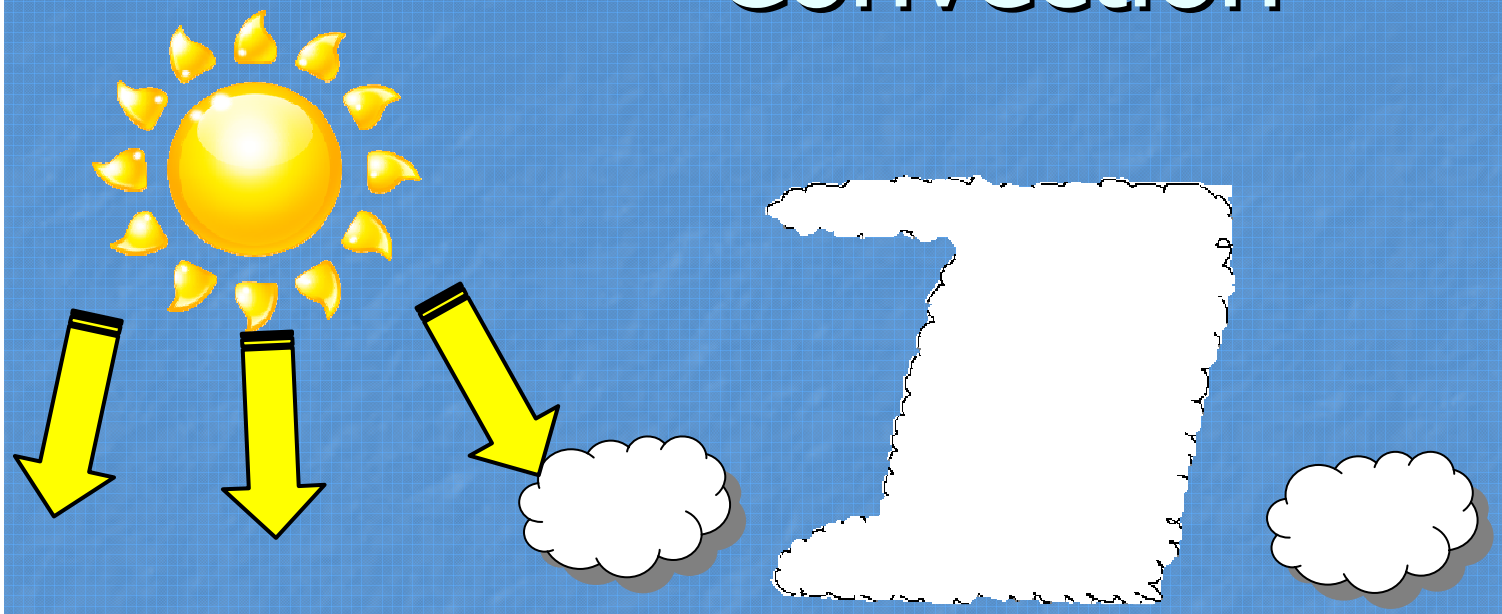


Cumulus Stage **Mature Stage** **Dissipating Stage**

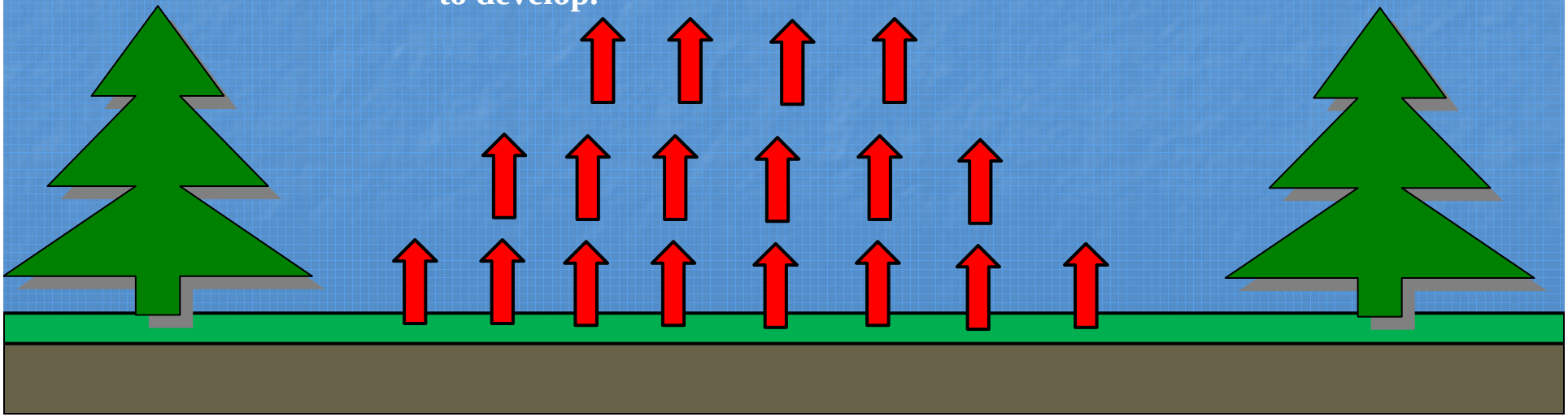
Convection


Rising air cools and condenses to form clouds
Warm Air Rises

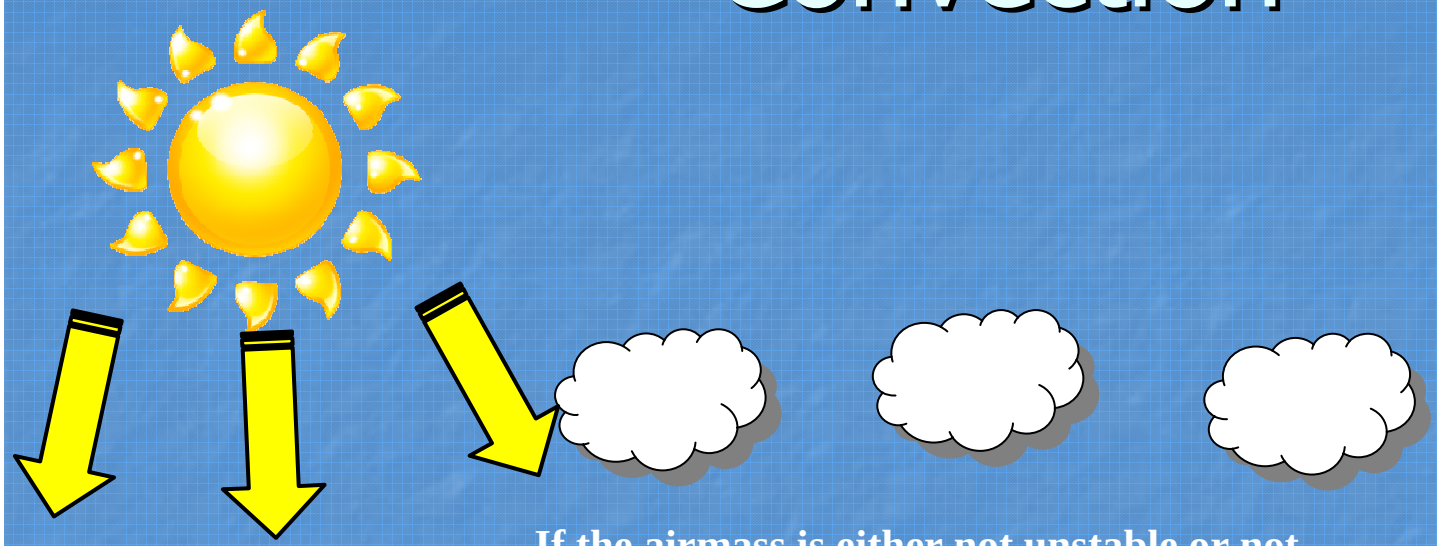
Convection



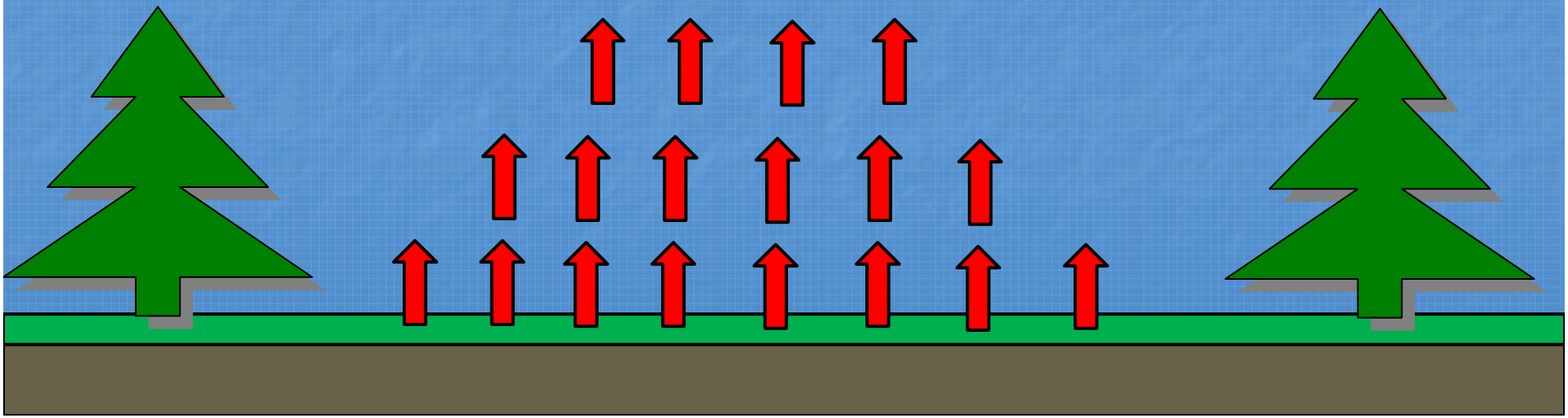
Over time, if the airmass remains unstable and moist enough, a thunderstorm will begin to develop.



Convection



If the airmass is either not unstable or not moist enough, thunderstorms will not form, but cumulus clouds may persist.



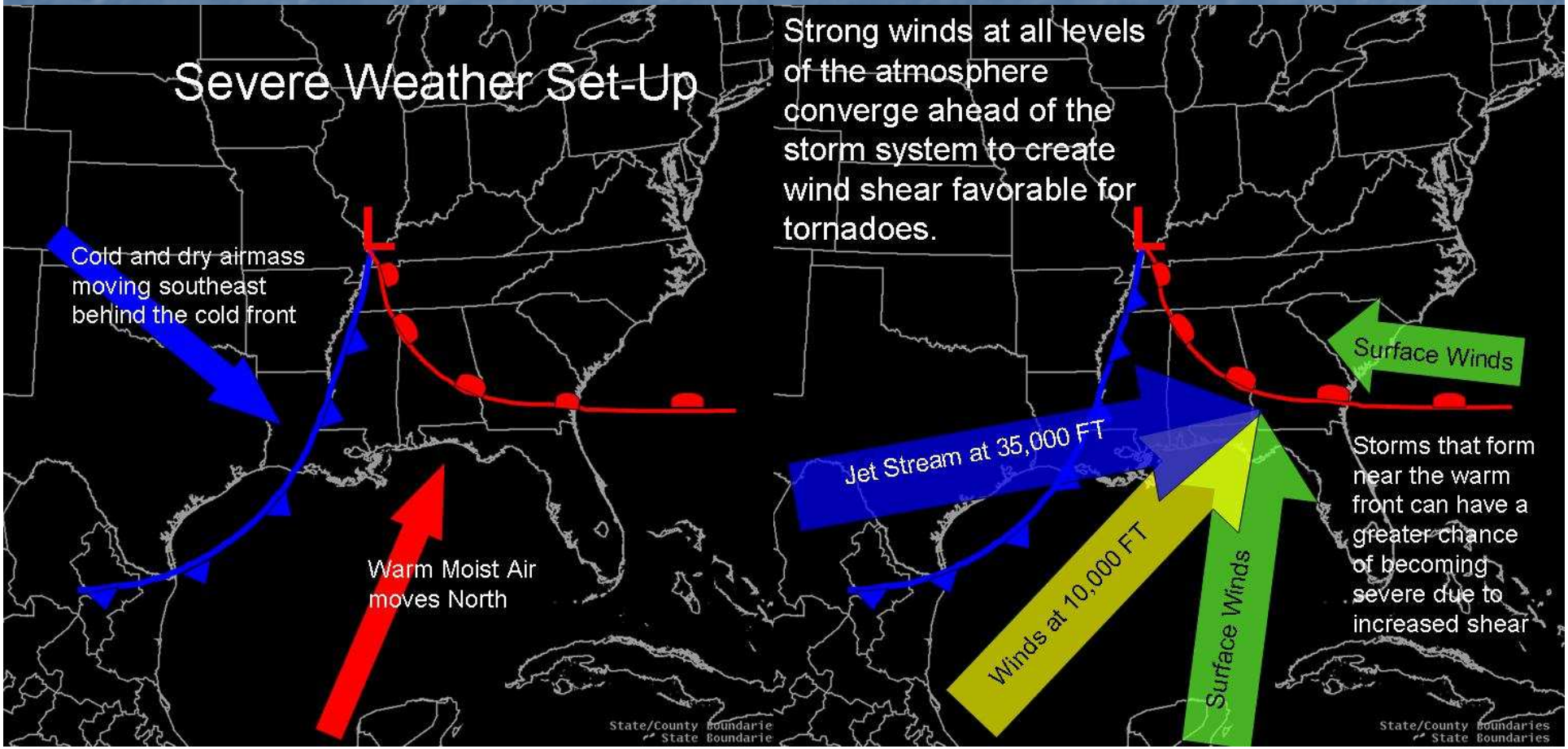
Severe Weather Forecasting

- When forecasting severe weather, we need four main ingredients to come together
  - Instability (lots of warm air at the surface)
  - Moisture (southerly winds off the Gulf)
  - Lifting mechanism (strong cold front)
  - Wind shear (winds increasing and changing direction)
- Only on rare occasions do all four of these ingredients mix together at the same time in our region.

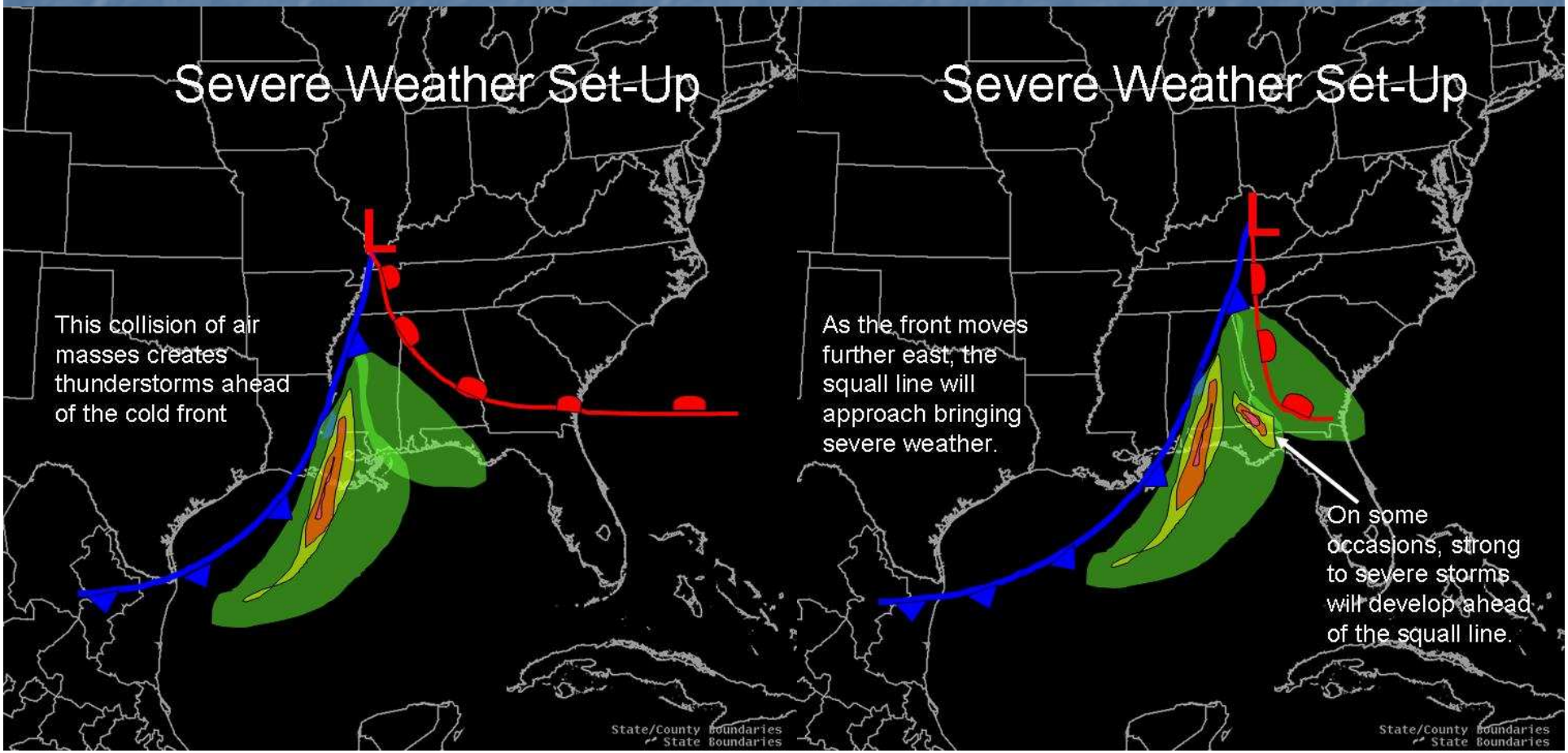
The ingredients begin to take shape...

Lift, Instability and Moisture

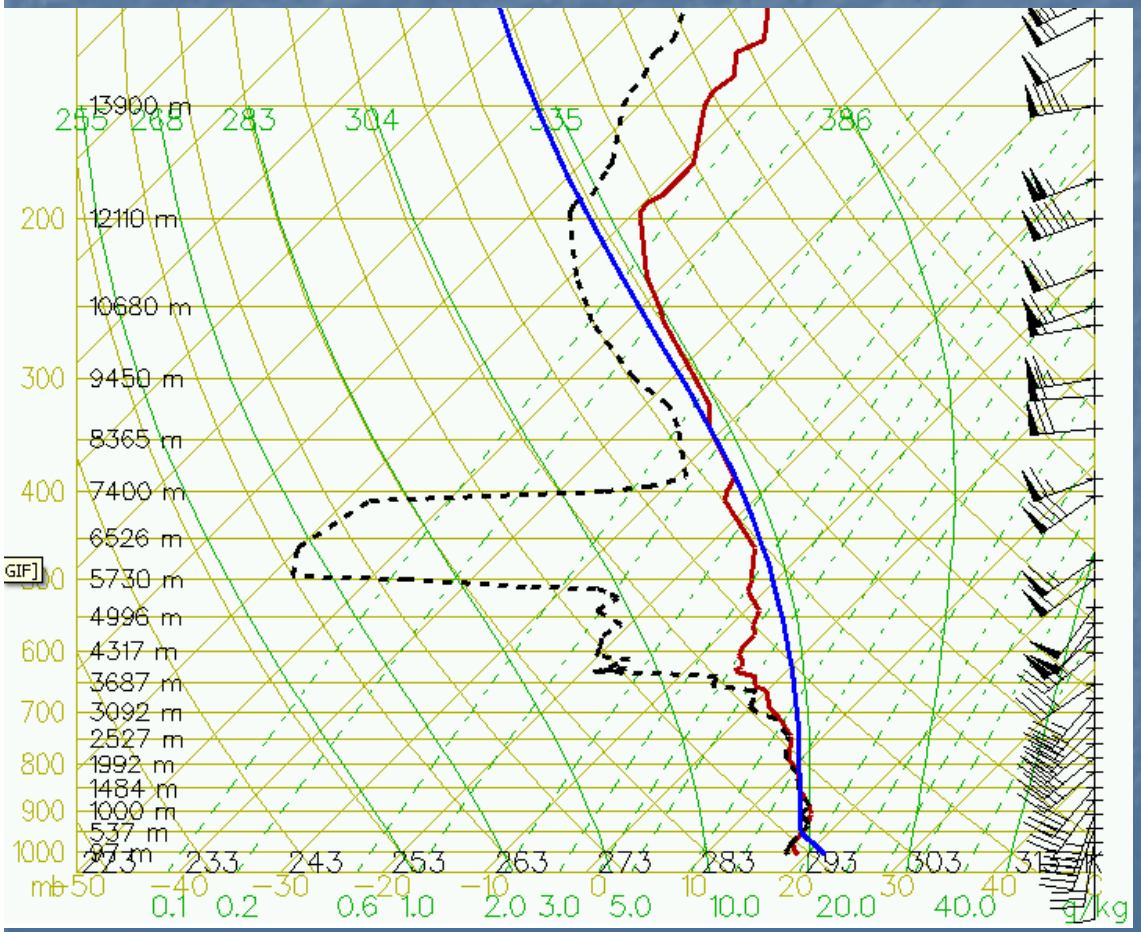
Wind Shear



This is what it looks like when the ingredients have come together

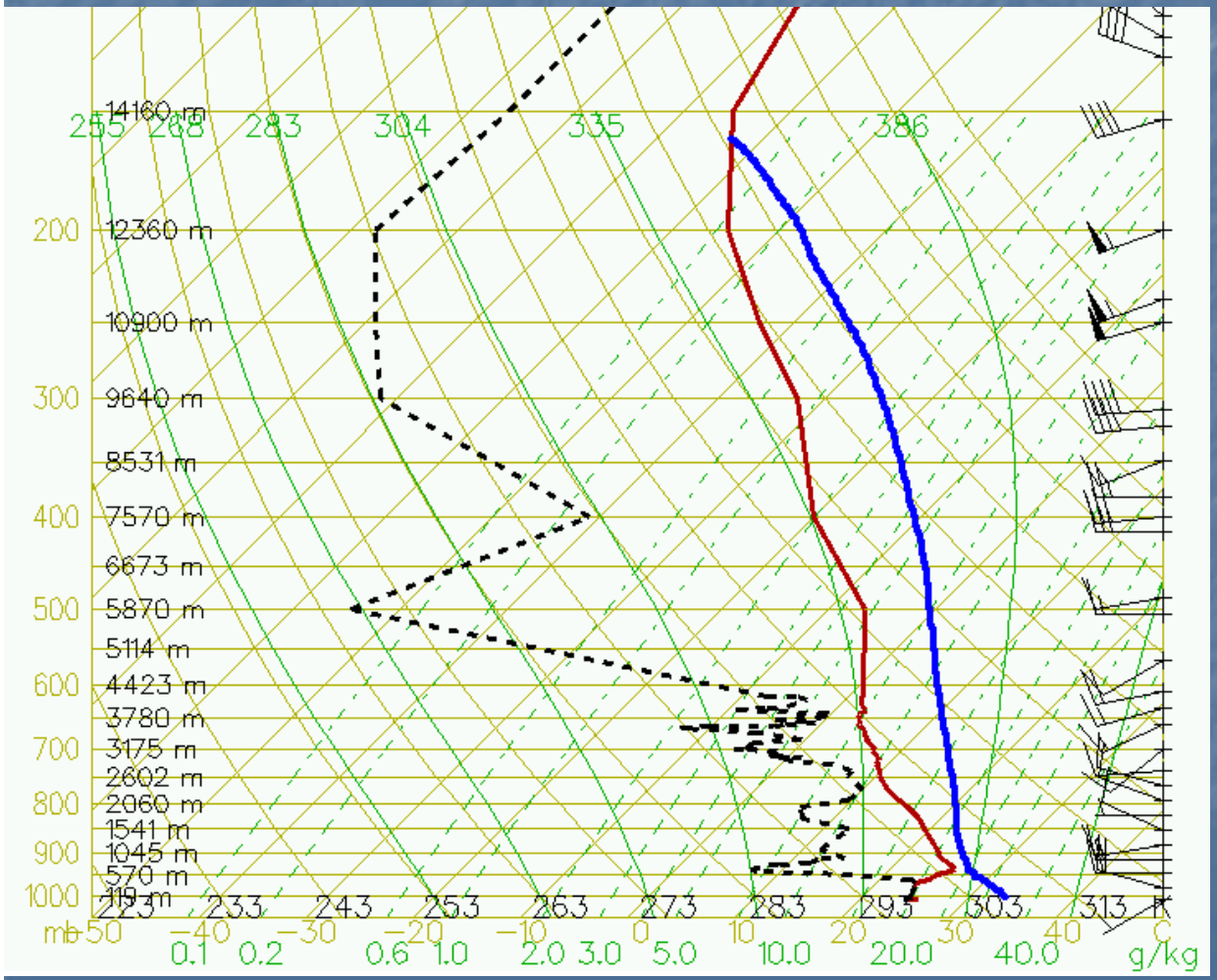


Cool Season Severe Storms



- Low CAPE, High Shear environments
- Often depend on quality and extent of warm moist airmass for severe potential
- General Guidelines:
  - CAPE > 250 J/KG
  - Return flow (SE-S-SW) for 24 hours over Gulf airmass with dewpoints >60.
  - Neutral or negatively tilted 500 mb trough
- There are always exceptions
  - Capitola, FL Tornado (EF-1)
  - CAPE : 2 J/KG, but SRH 800 m^2/s^2

Warm Season Storms

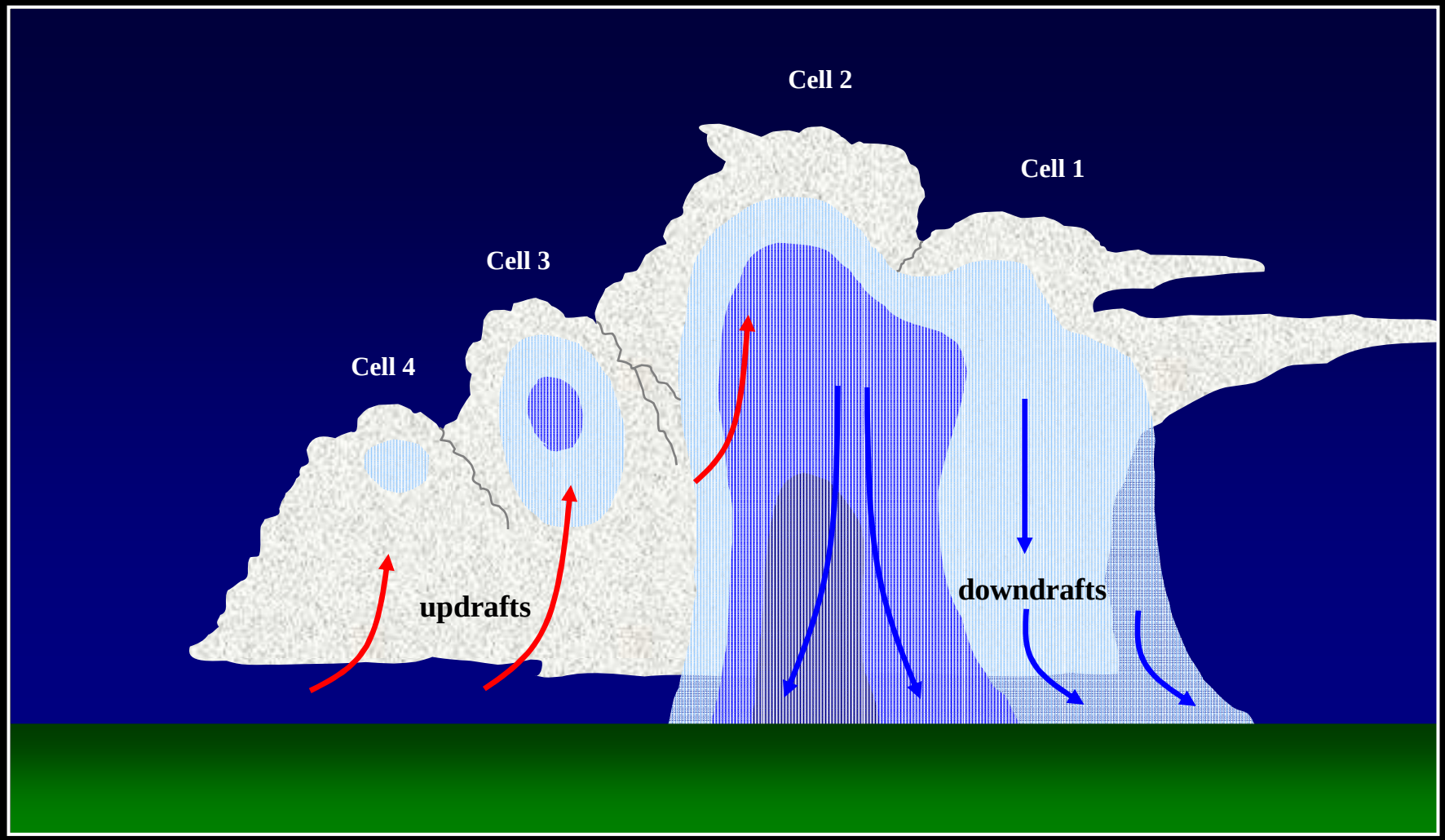


- Predominantly weak shear, high CAPE events.
- Sea breeze interactions drive severe potential
- Too much moisture or active sea breeze fronts can inhibit severe potential.
- Mid level dry air can actually enhance downburst potential.
- Things to look for:
  - 700-500 mb dewpoint depressions elevated
  - Convergent flow relative to sea breeze boundaries (West, Northwest, Northeast, East)
  - Freezing level less than 15,000 ft.
  - Severe hail is most likely in June or July.

Common Thunderstorm Types

- ***Multicell* - ordinary storms with low severe threat**
- ***Squall line* - line of storms with moderate wind threat**
- ***Classic Supercell* - rotating updraft with high severe threat**
- ***HP (high precipitation) Supercell* - rotating updraft often times obscured by heavy rain, high severe threat**

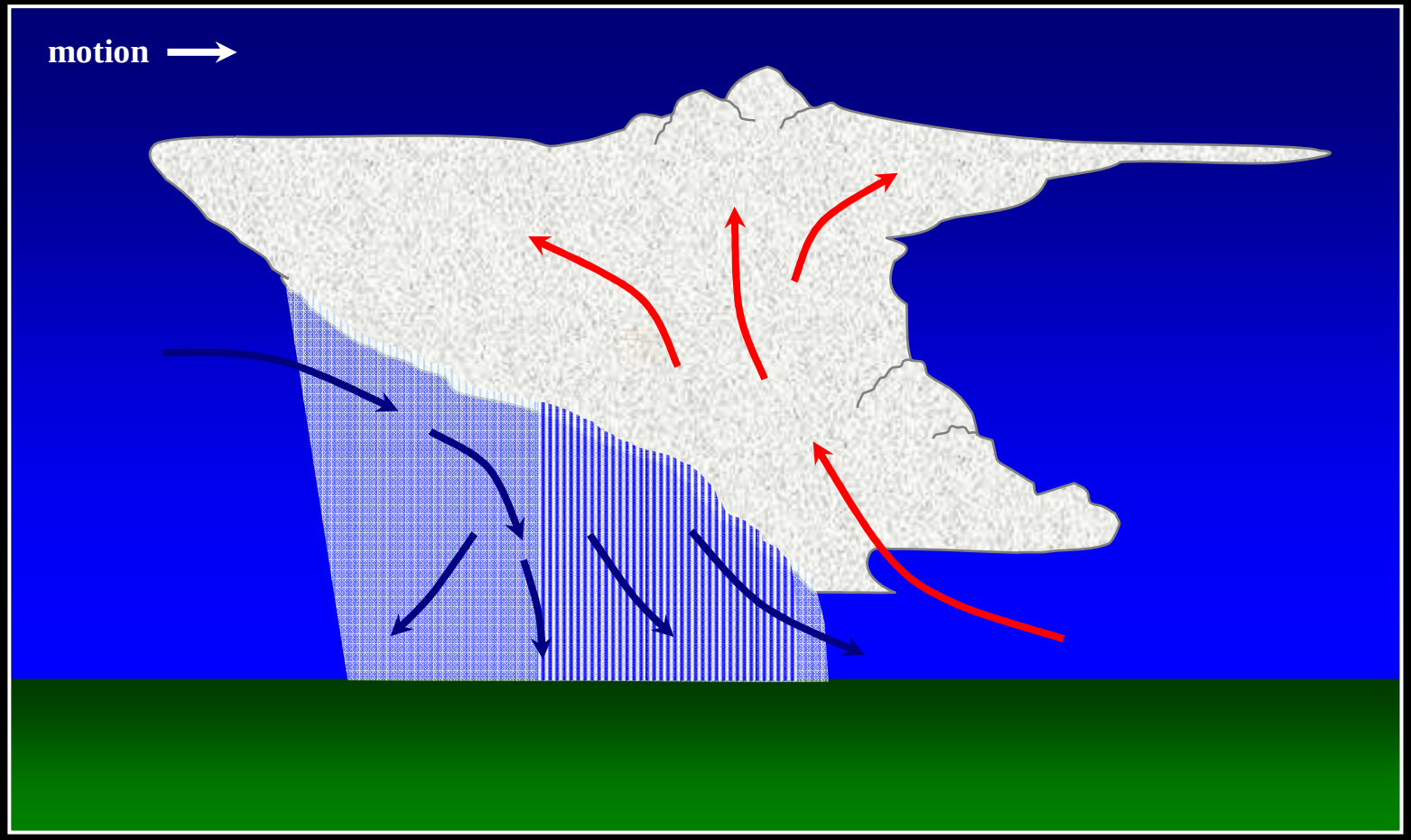
Multicell Thunderstorm



Side view

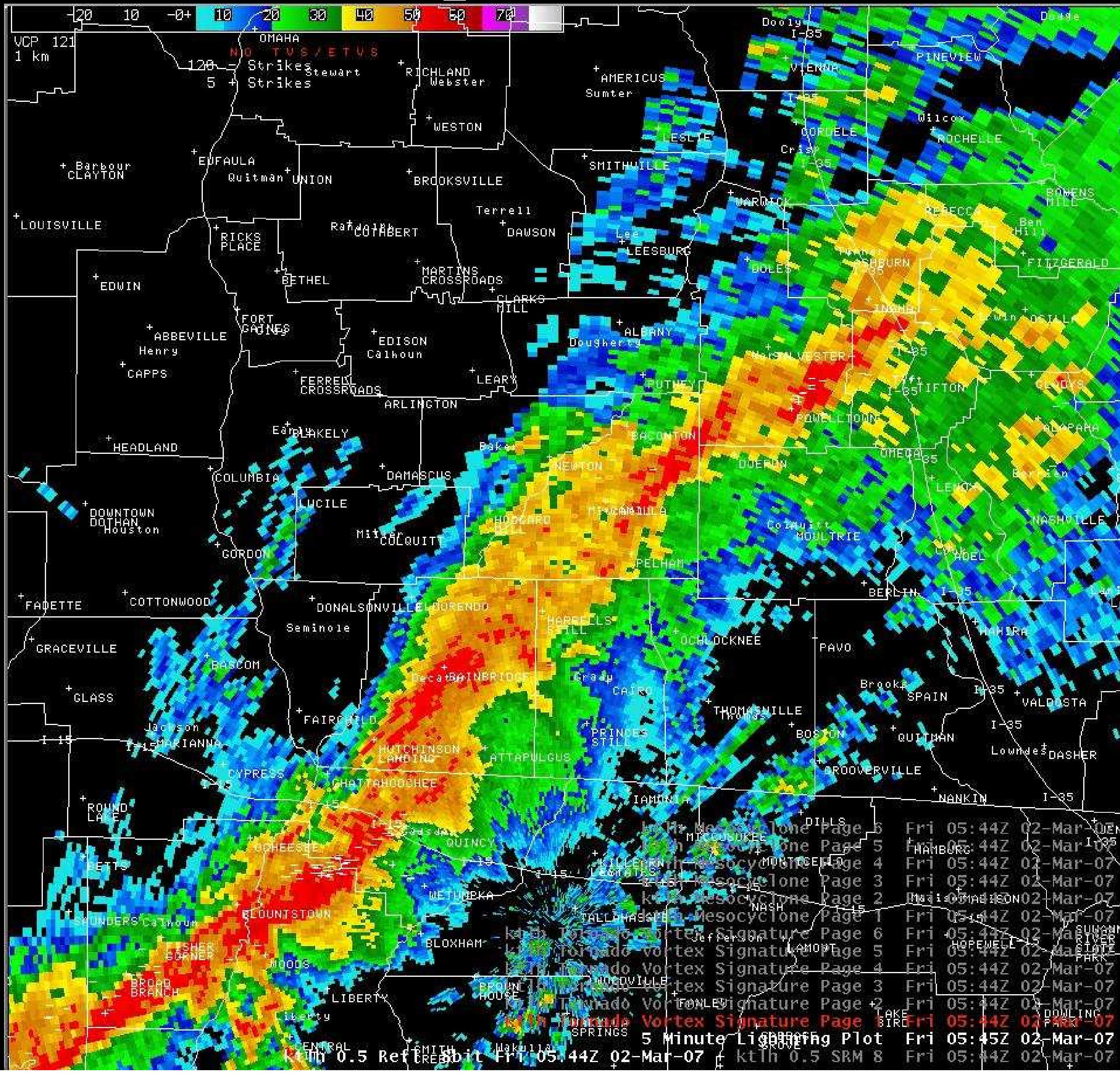
Multicell Thunderstorm

Squall Line



(Cross section)

Squall Line



-20 10 -0+ 10 20 30 40 50 60 70
VCP 121
1 km
NO TVS/ETVS
120 - Strikes
5 + Strikes
OMAHA
RICHLAND
AMERICUS
VIENNA
PINEVIEW
WESTON
EUFAULA
UNION
BROOKSVILLE
SMITHVILLE
CORDELE
ROCHELLE
LOUISVILLE
RICKS PLACE
CUTHBERT
DAWSON
LEESBURG
ASHBURN
FITZGERALD
EDWIN
BETHEL
ALBANY
ABBEVILLE
EDISON
CAPPS
LEARY
SYLVESTER
TIFTON
ARLINGTON
HEADLAND
BLAKELY
BACONTON
DAMASCUS
NEWTON
COLUMBIA
LUCILE
DOWNTOWN DOTHAN
COLQUITT
MOULTRIE
NASHVILLE
GORDON
PELHAM
ADEL
COTTONWOOD
DONALSONVILLE
BERLIN
GRACEVILLE
OCHLOCKNEE
PAVO
BAINBRIDGE
CAIRO
GLASS
THOMASVILLE
VALDOSTA
MARIANNA
QUITMAN
HUTCHINSON LANDING
ATTAPULGUS
DASHER
CHATTAHOOCHEE
NANKIN
QUINCY
TALLAHASSEE
BLOUNTSTOWN
BLOXHAM
LIBERTY
ktlh Mesocyclone Page 6 Fri 05:44Z 02-Mar-07
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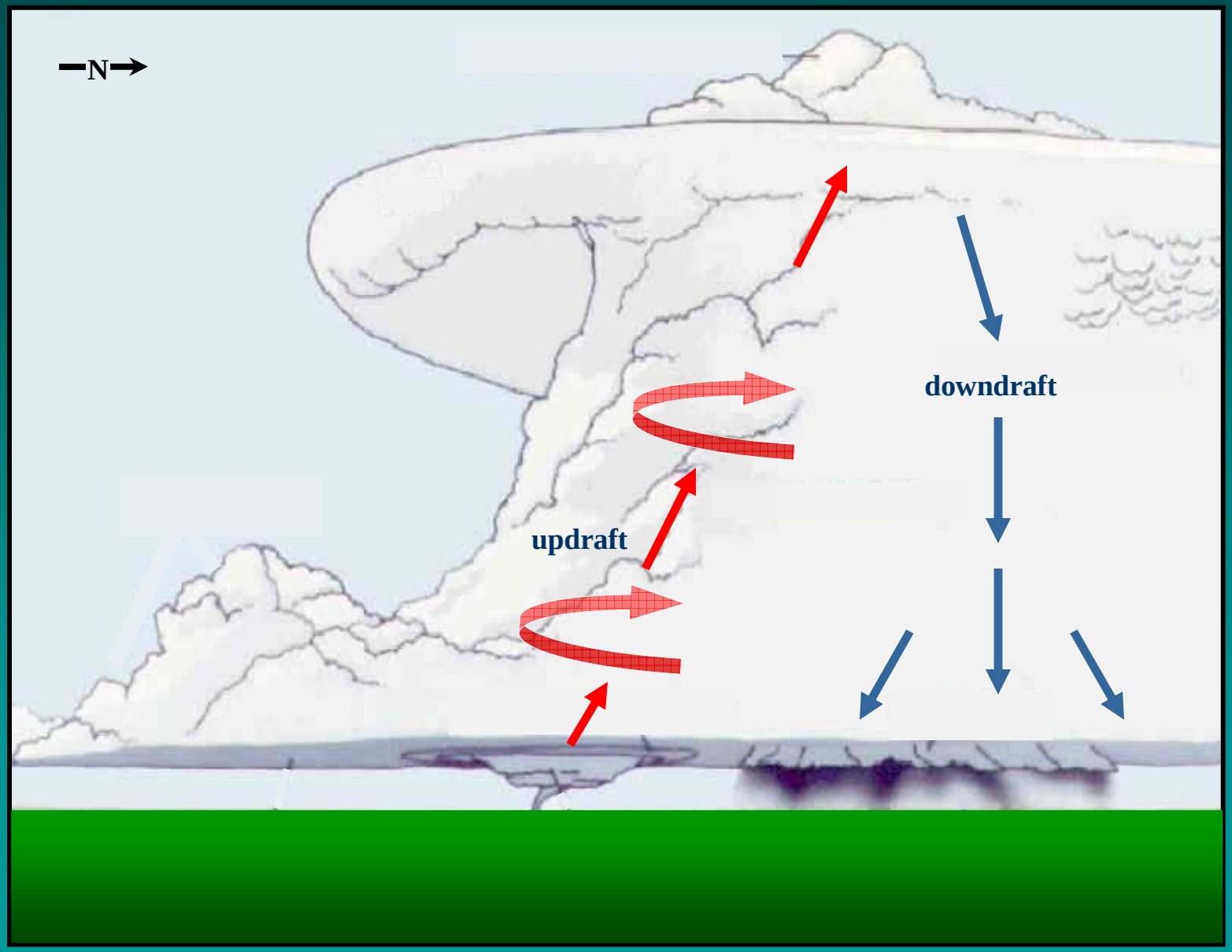
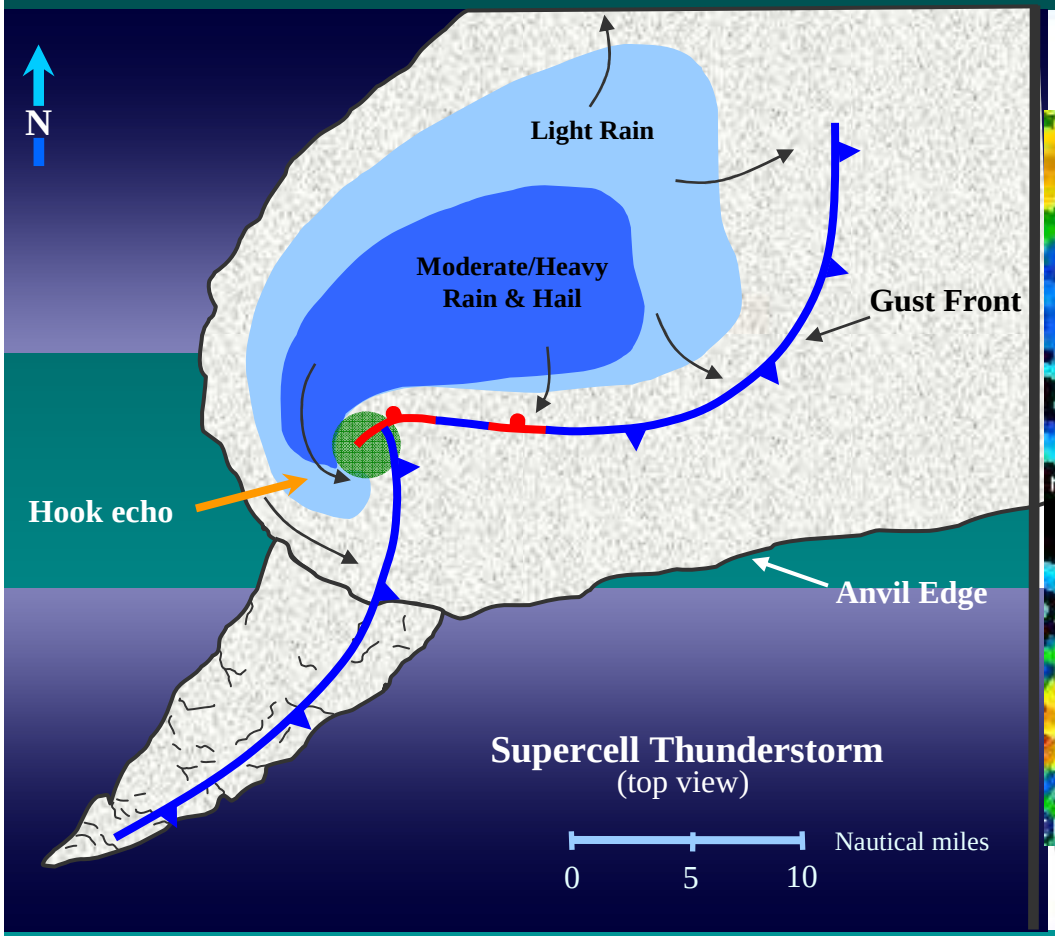
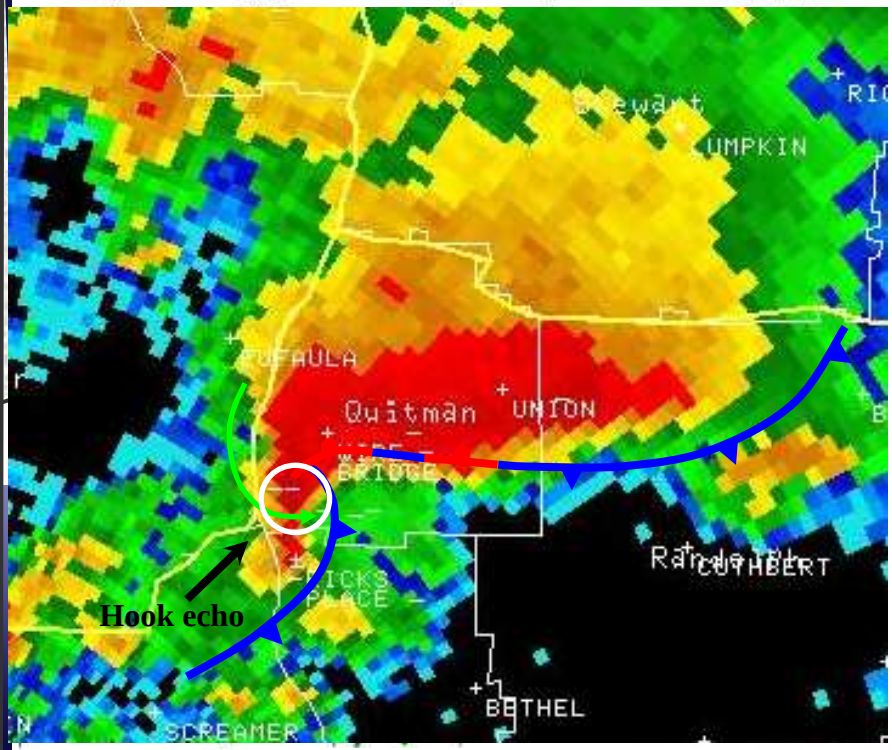
ktlh Tornado Vortex Signature Page 1 Fri 05:44Z 02-Mar-07
5 Minute Lightning Plot Fri 05:45Z 02-Mar-07
ktlh 0.5 Refl 8bit Fri 05:44Z 02-Mar-07
ktlh 0.5 SRM 8 Fri 05:44Z 02-Mar-07

Classic Supercell Thunderstorm

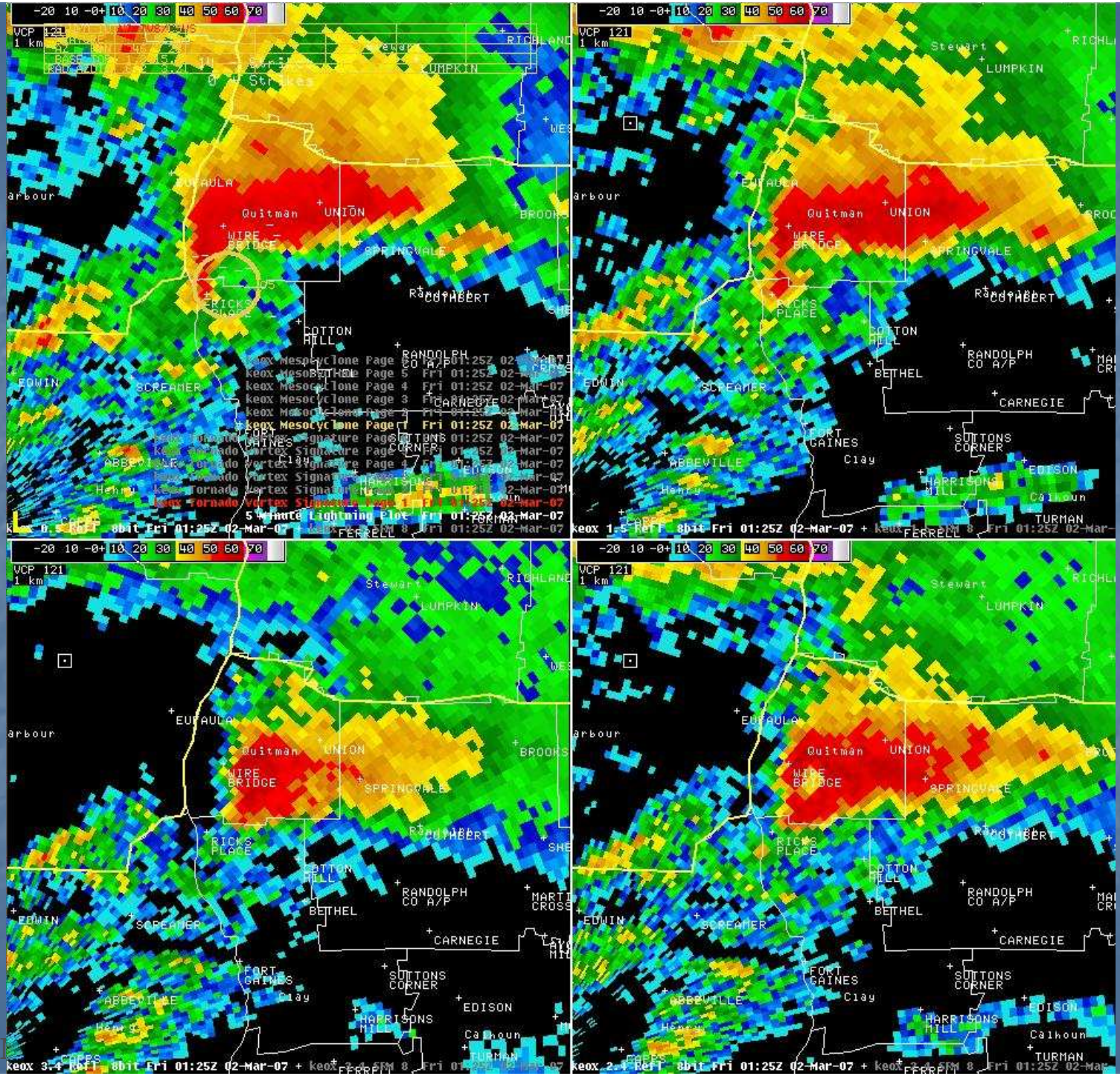


Classic Supercell Thunderstorm



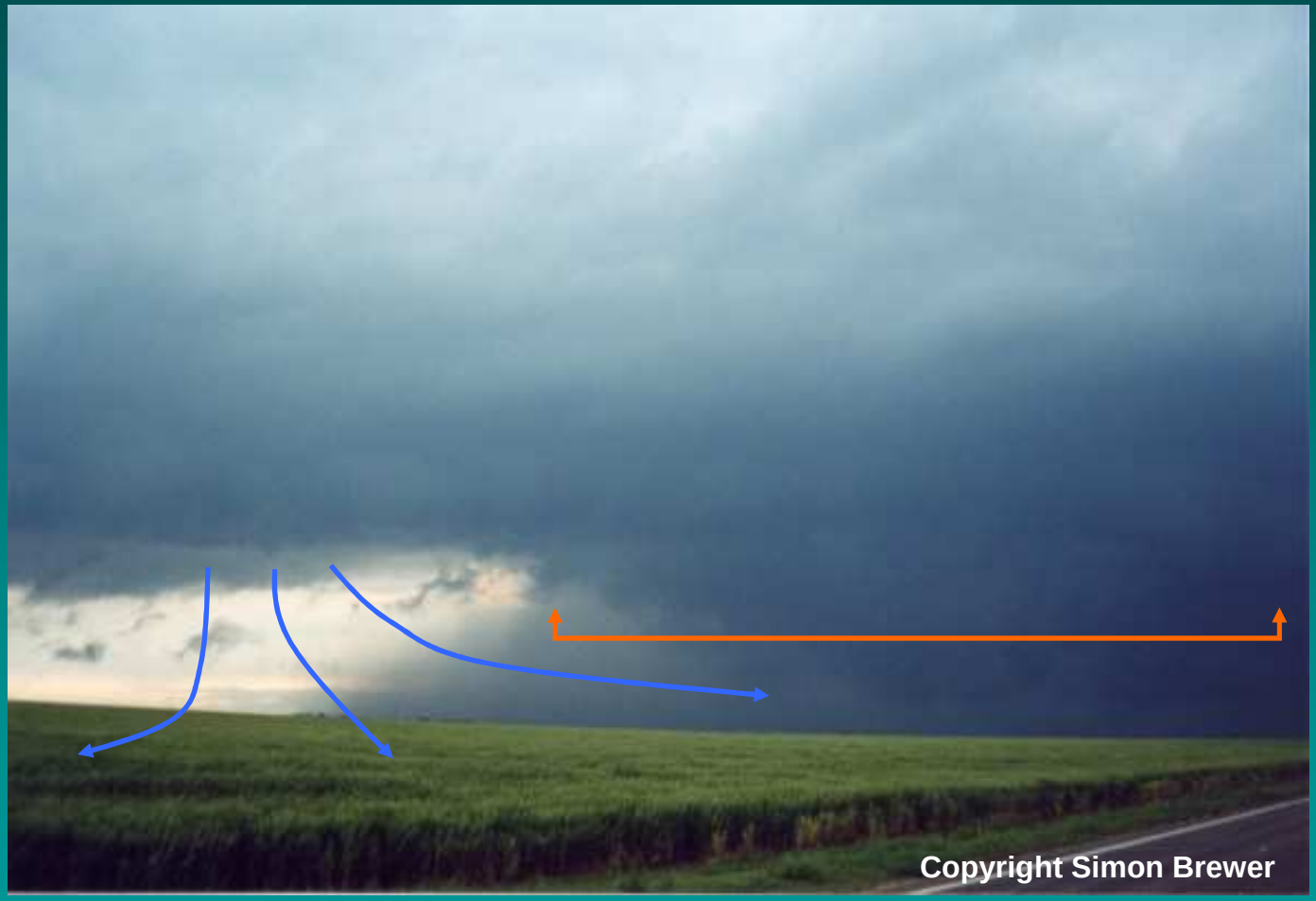


WSR-88D Radar Image

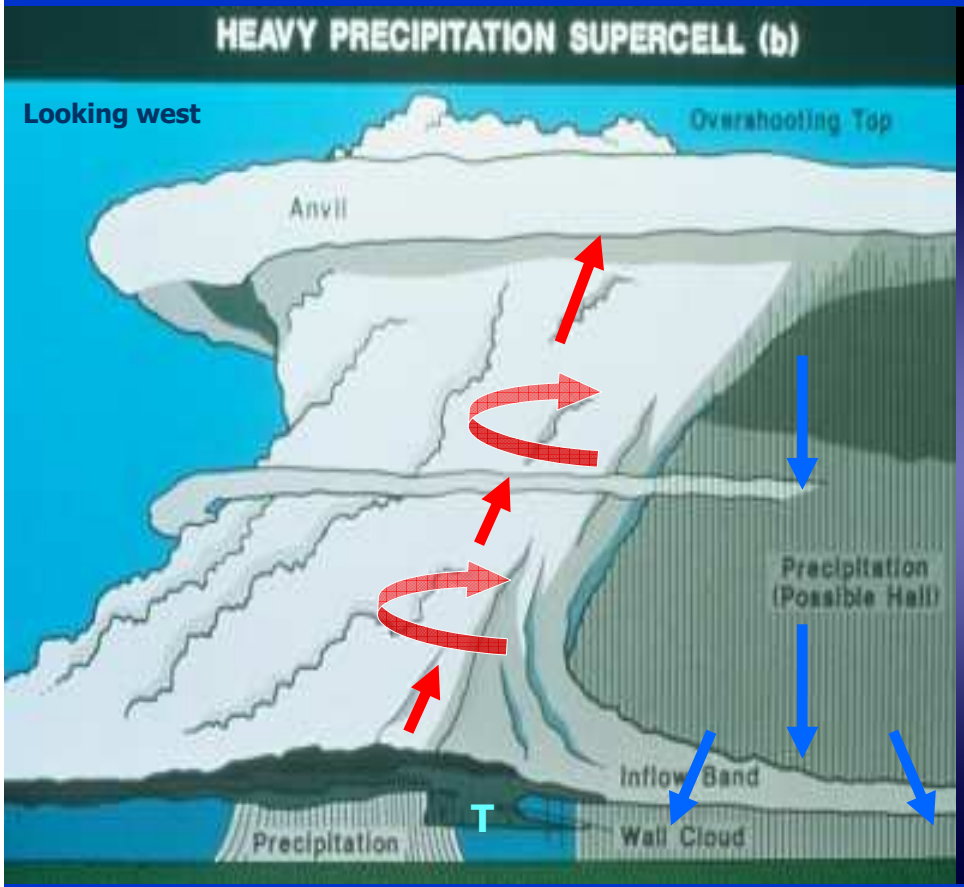

-20 10 -0+ 10 20 30 40 50 60 70
VCP 121
1 km
Stewart
LUMPKIN
RICHLAND
EUFAULA
Quitman
UNION
BROOKS
WIRE BRIDGE
SPRINGVALE
RICKS PLACE
COTHBERT
COTTON HILL
RANDOLPH CO A/P
BETHEL
EDWIN
SCREAMER
CARNEGIE
FORT GAINES
SUTTONS CORNER
ABBEVILLE
Clay
HARRISONS MILL
EDISON
Calhoun
TURMAN
FERRELL
keox 1.5 Refl 8bit Fri 01:25Z 02-Mar-07
keox 3.4 Refl 8bit Fri 01:25Z 02-Mar-07
keox 2.4 Refl 8bit Fri 01:25Z 02-Mar-07

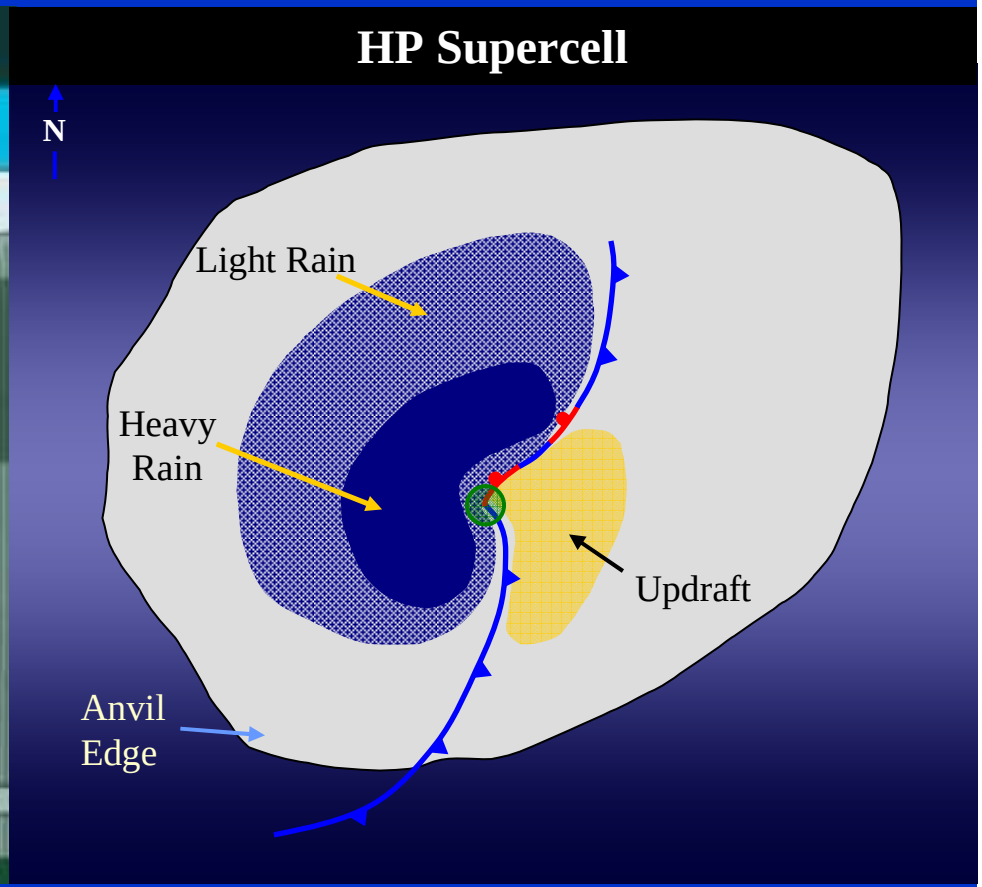

BMott

Rear Flank Downdraft

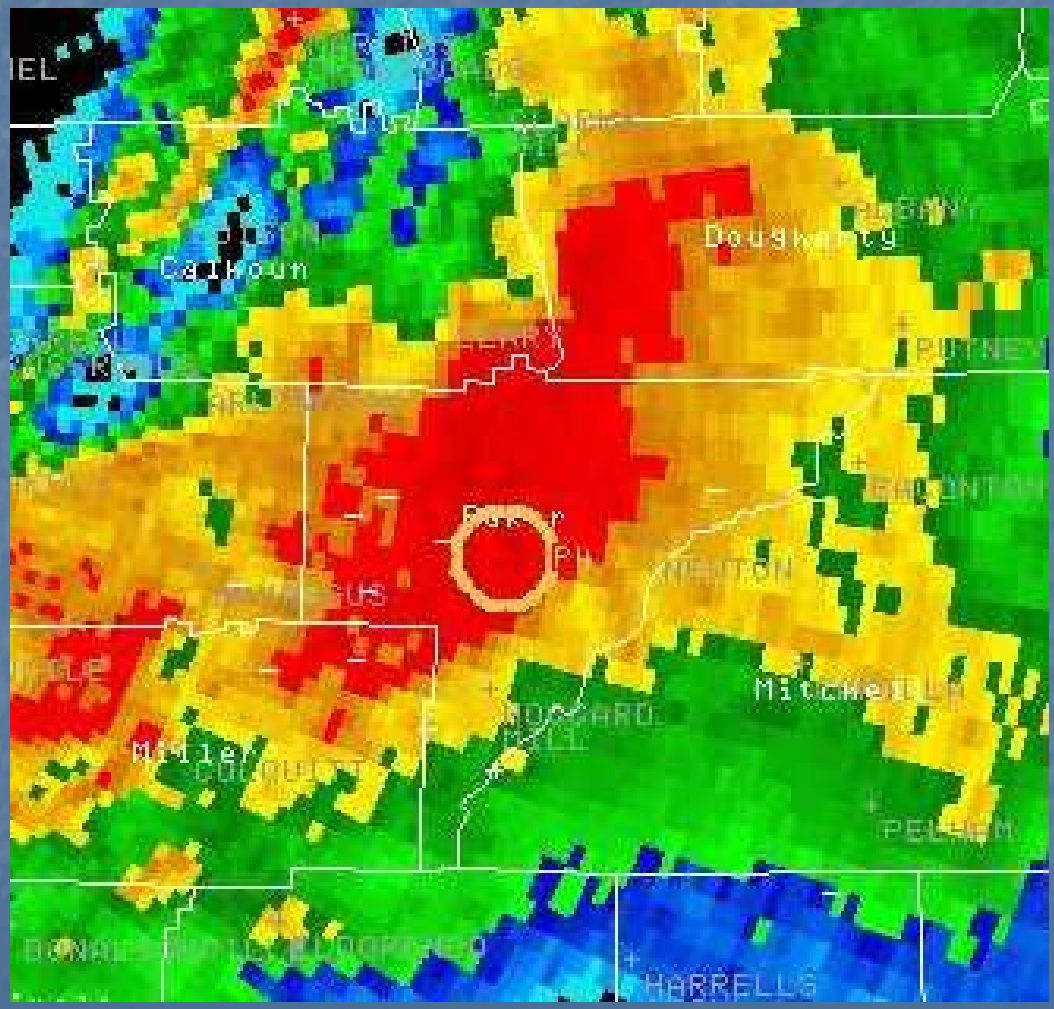


HP Supercell

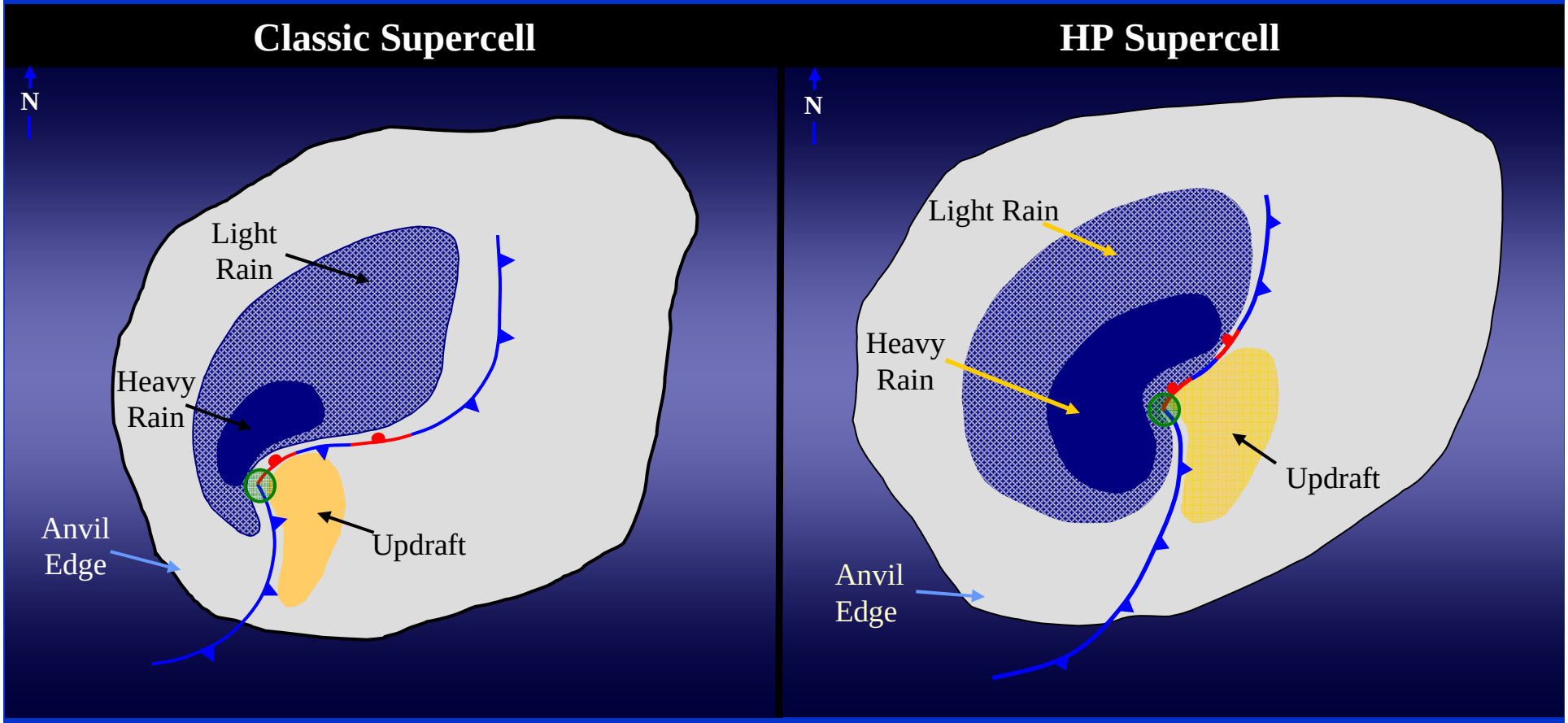




HP Supercell



Classic vs. HP comparison



Top view

Top view

Two Supercell Thunderstorms from the March 1-2, 2007 Tornado Outbreak

Classical Supercell

High Precipitation Supercell

HP Supercell

Midpoint Break

- Do you have any questions?
- We'll take five minutes and let everyone have a break and then finish the presentation with part 2

Thunderstorm components

Updrafts

Downdrafts

Shelf Cloud

Wall Cloud

Funnel Cloud

Rainfree Base

Land spout

Gust Front

Tornado

Gustnado

Updraft Characteristics

- -"Back" side of storm
- -Cumulus tower
- -Rainfree base
- -Upward cloud motion
- -Supercell has rotating updraft

Downdraft Characteristics

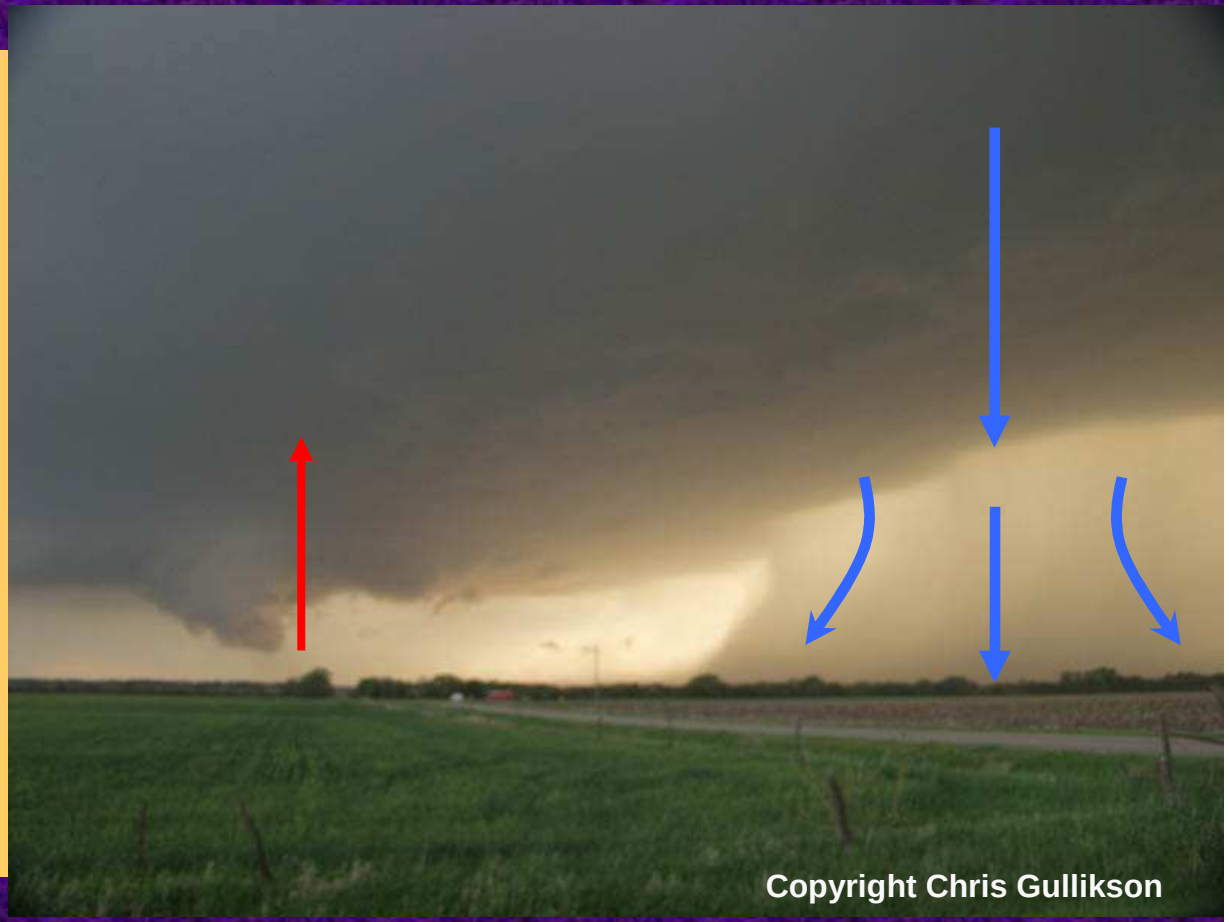
-"Front" side of storm

-Dark area of storm

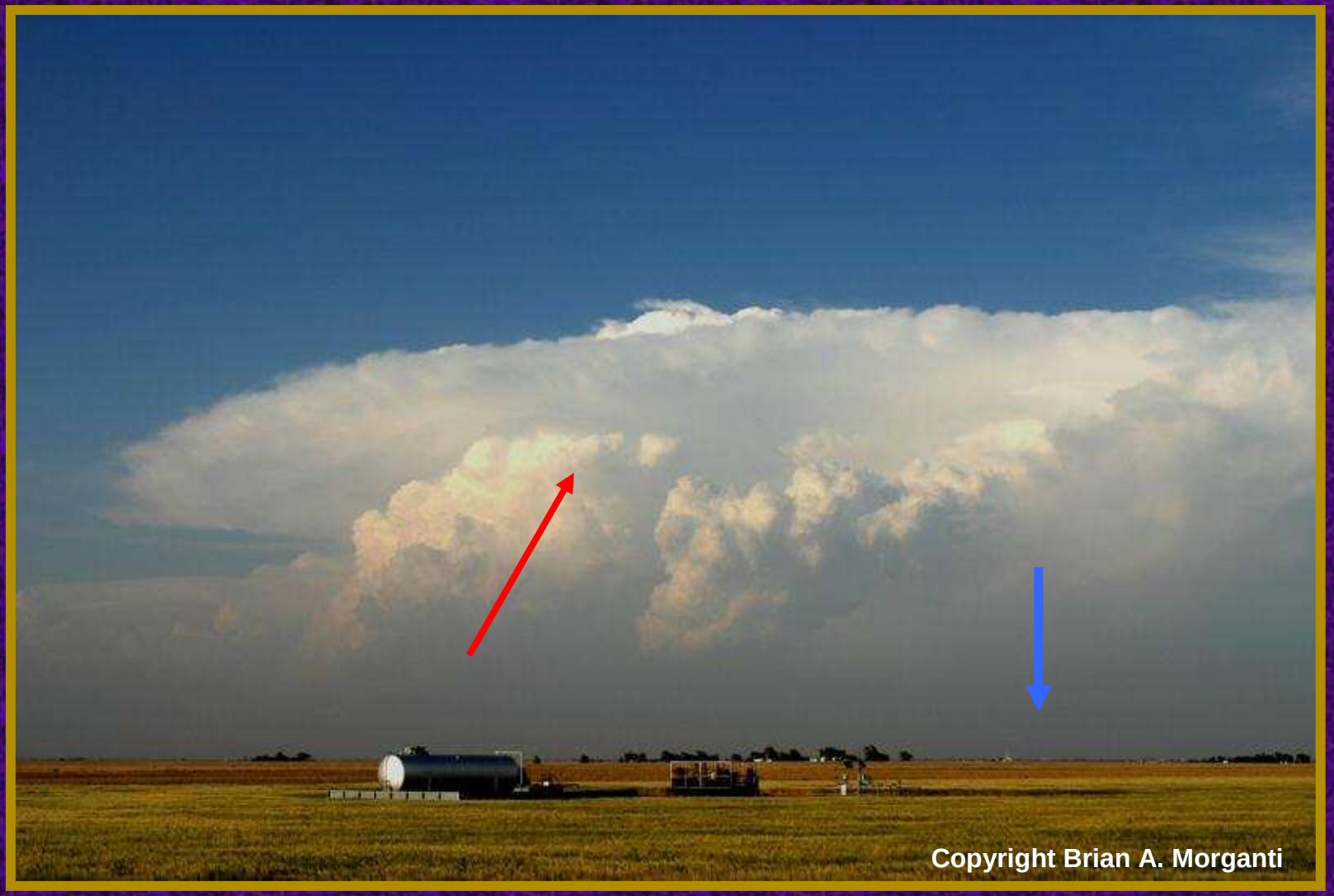
-Rainfall region

-Downward motion

-Downburst/hail threat



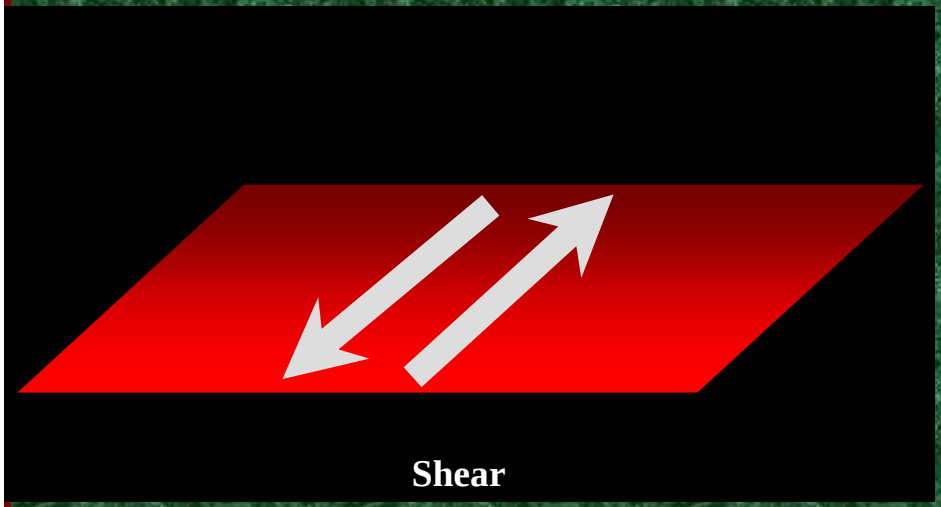
Updraft/Downdraft



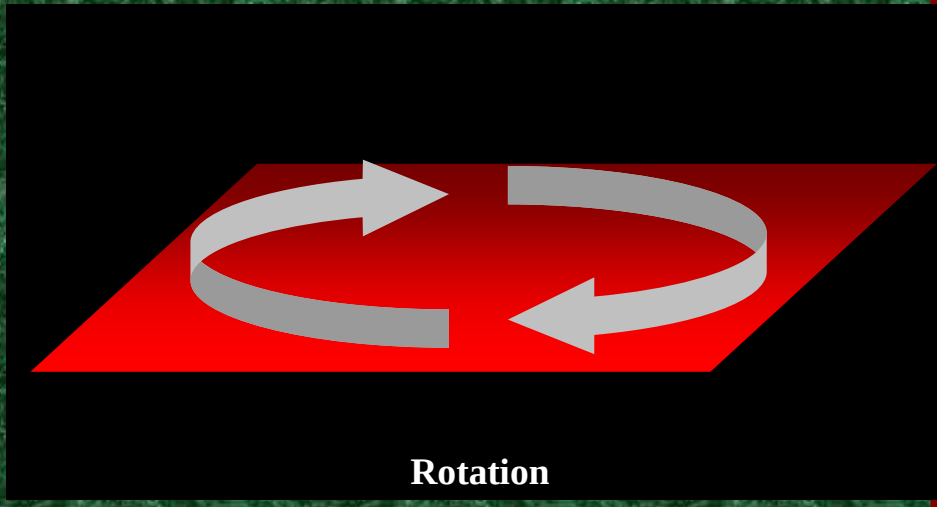
Upper Level Storm Strength Clues

Mid Level Storm Strength Clues

Shear vs. Rotation

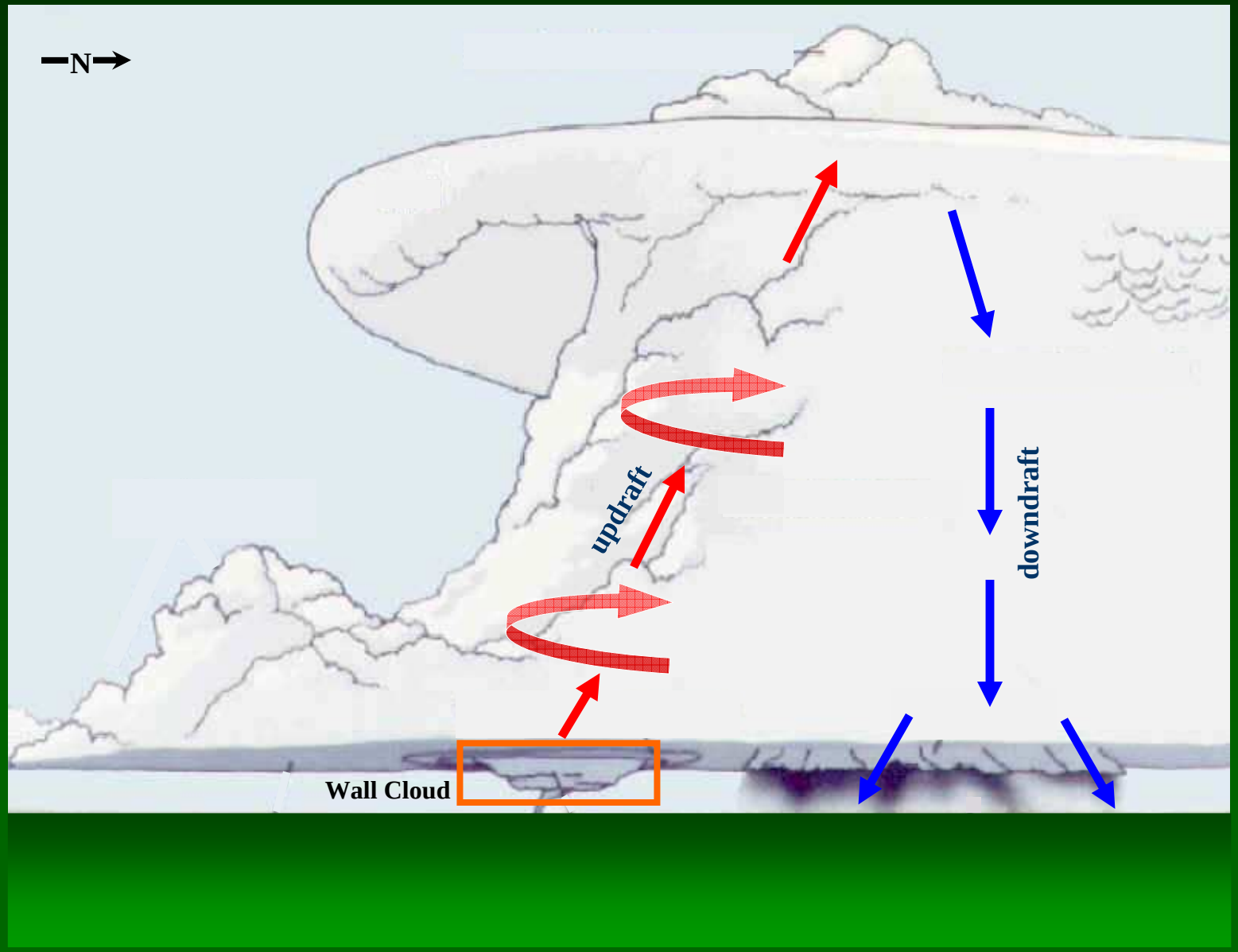


Shear



Rotation

Wall Clouds



Wall Cloud Characteristics

> Surface based inflow under the updraft

> Attached to cloud base

> Look for persistence

> May or may not rotate

>Look for vertical cloud motion

>Often slopes or points toward precipitation or downdraft

Wall Cloud

Wall Cloud

Wall Cloud

Funnel Clouds

> A rotating, funnel-shaped cloud extending downward from a thunderstorm base.

> Usually located near updraft but can be found anywhere

> Attached to cloud base

> Exhibit rapid rotation and are most often laminar or smooth in appearance

> Do not reach ground

Tornado

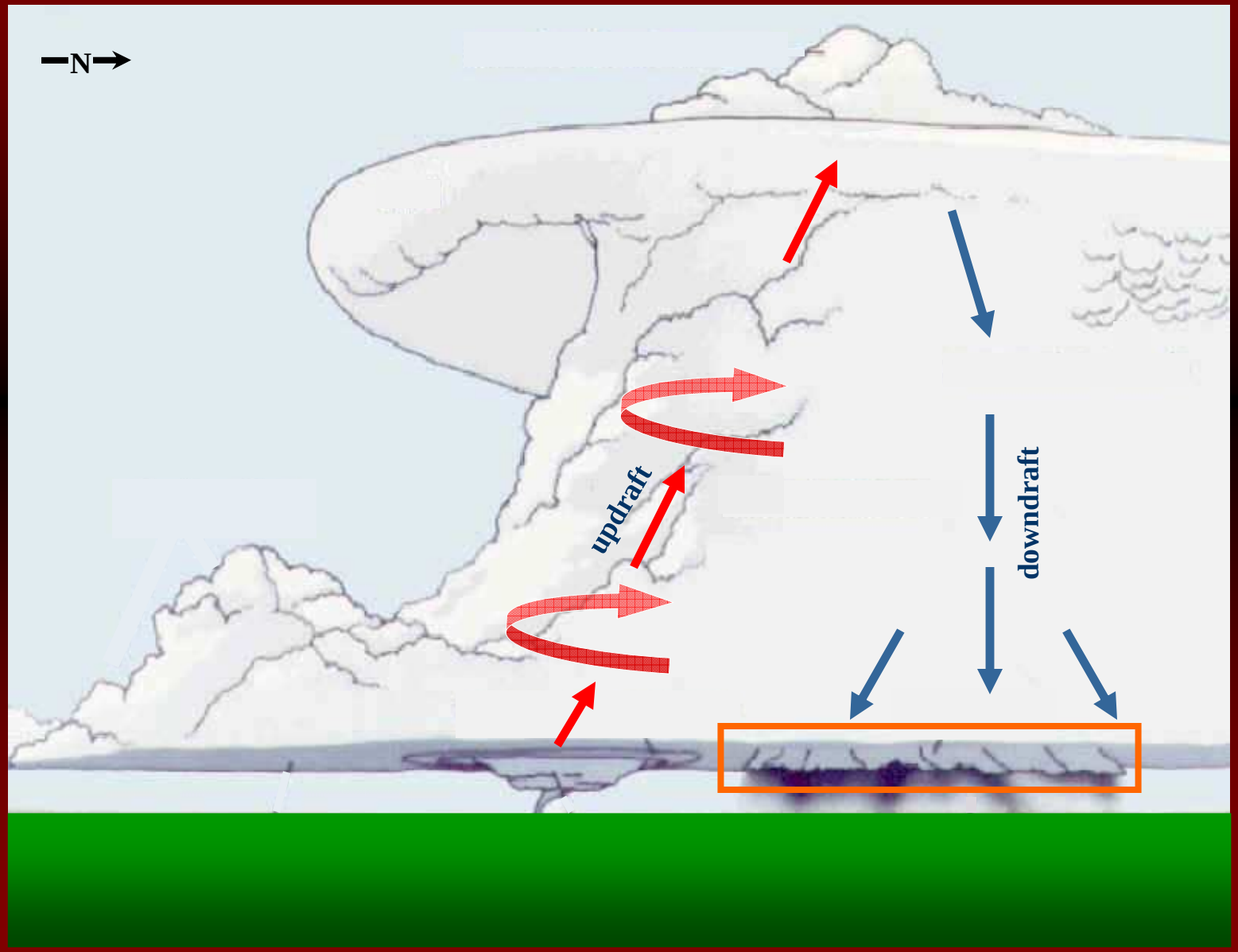
A violently rotating column of air extending

from cloud base to the ground.

Funnel Cloud

Funnel Cloud/Tornado

Shelf Clouds



Shelf Clouds

-Marks the leading edge of the gust front

-Usually produced by rain cooled air

-Usually in area of low level shear

-Slope down away from precipitation area

-Often associated with a squall line- can be associated with gustnadoes or damaging straight-line wind

Shelf Clouds

Mammatus


Storm Feature
Look Alike
Copyright Mike Hollingshead

Look Alike

Look Alike

Look Alike

Look Alike

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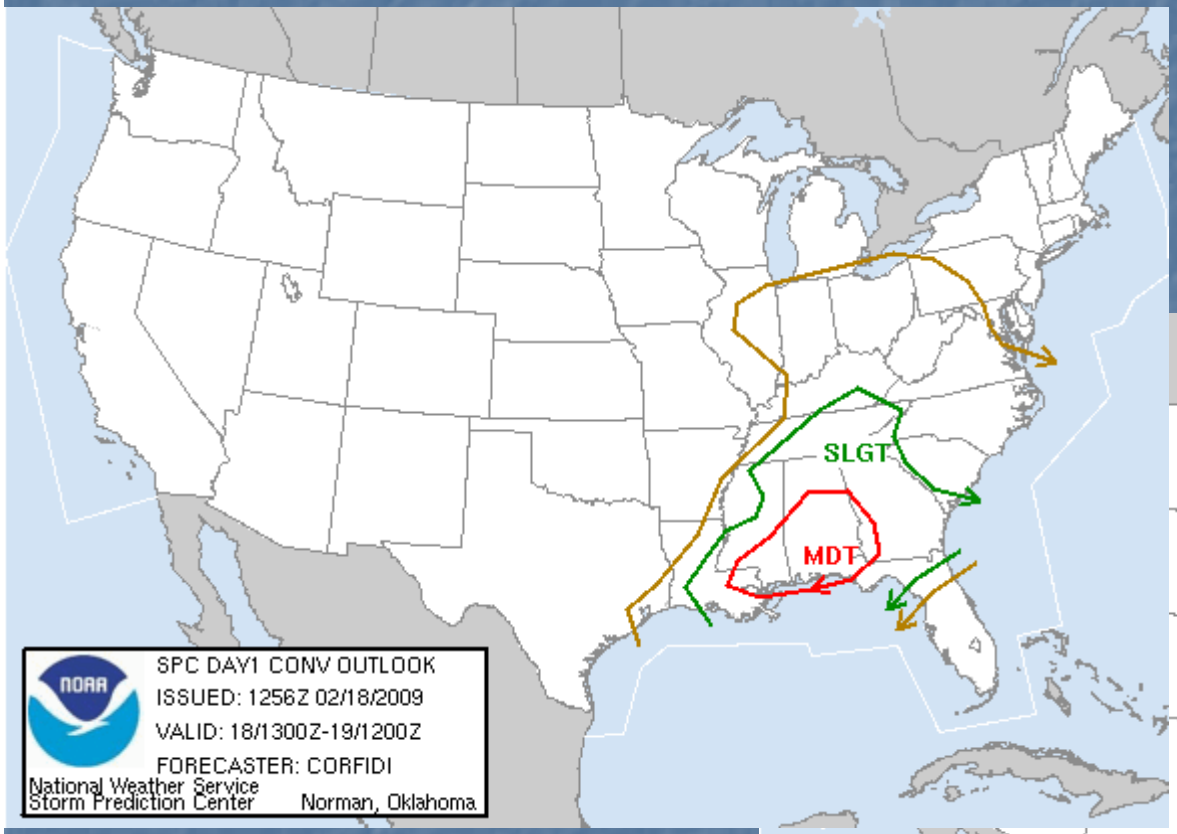
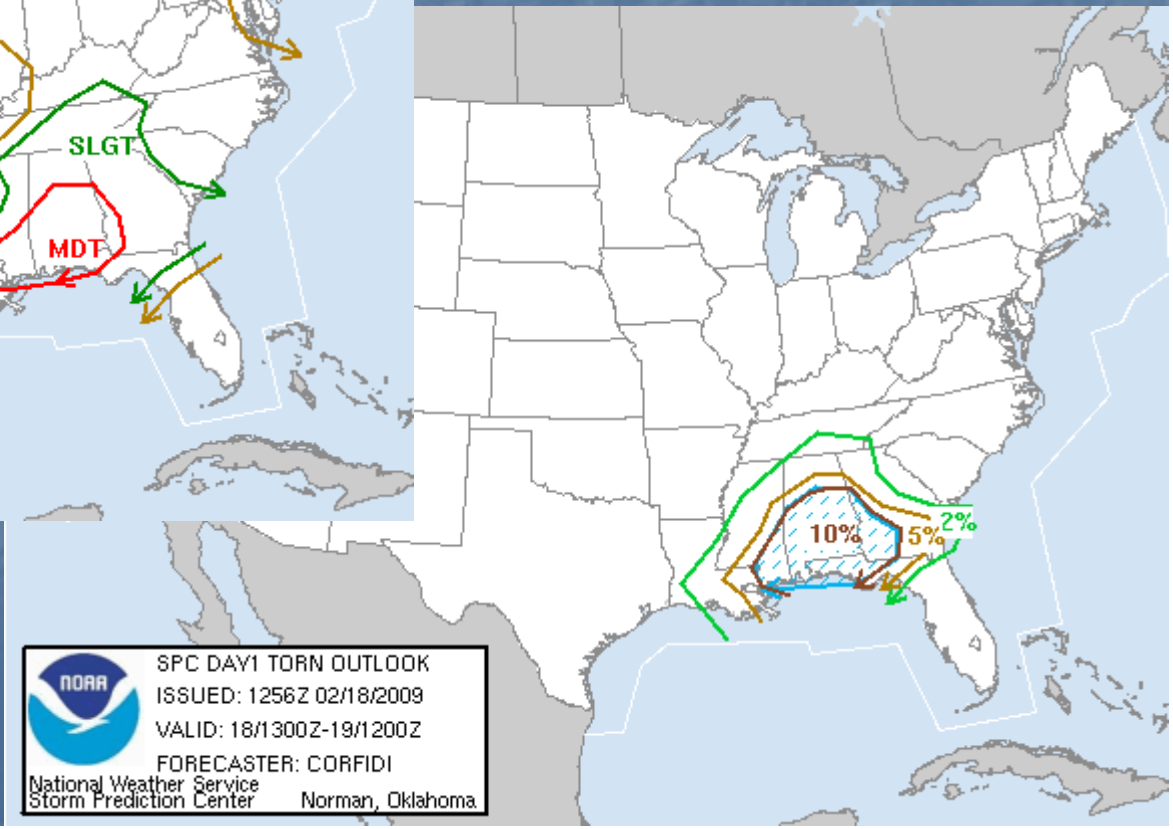
Look Alike

Look Alike

Look Alike

Case Study – Storm Outlooks





...SEVERE STORMS ARE POSSIBLE THIS AFTERNOON INTO TONIGHT...

THIS HAZARDOUS WEATHER OUTLOOK IS FOR SOUTHEAST ALABAMA...
SOUTHWEST AND SOUTH CENTRAL GEORGIA...AND THE FLORIDA BIG BEND
AND PANHANDLE...AND ADJACENT COASTAL WATERS.

.DAY ONE...TODAY AND TONIGHT...
A STRONG COLD FRONT WILL MOVE ACROSS THE LOCAL AREA FROM WEST TO
EAST THIS EVENING INTO THE OVERNIGHT HOURS. AHEAD OF IT...BREEZY
ONSHORE WINDS WITH HIGHER GUSTS ARE EXPECTED. A BAND OF SHOWERS
AND THUNDERSTORMS IS FORECAST TO CROSS THE FORECAST AREA LATER
THIS AFTERNOON THROUGH EARLY THURSDAY. DESPITE LIMITED INSTABILITY
...THE WINDS AND DEEP LAYER SHEAR ARE HIGH ENOUGH TO SUPPORT SOME
SEVERE THUNDERSTORMS. THE MAIN THREAT WOULD BE DAMAGING STRAIGHT
LINE WINDS WITH ANY DISCRETE BOWING SEGMENTS AS WELL AS LARGE
HAIL. THE COLD FRONT WILL EXIT THE SOUTHEAST FLORIDA BIG BEND
EARLY THURSDAY MORNING...ENDING THE THREAT FOR SEVERE WEATHER.

WITH STRONG ONSHORE FLOW...WINDS AND SEAS ARE EXPECTED TO REACH
REACH ADVISORY LEVELS THIS MORNING OVER THE WESTERN LEGS AND THIS
AFTERNOON OVER THE EASTERN LEGS. THUS A SMALL CRAFT ADVISORY HAS BEEN
HOISTED. ALSO...THE STRONG ONSHORE FLOW WILL LEAD TO BUILDING
SURF ALONG THE PANHANDLE BEACHES...ESPECIALLY WALTON AND BAY
COUNTIES. BREAKERS OF UP TO 6 FEET LATER TODAY WITH RESIDUAL
SWELLS OF 2 TO 4 FEET EARLY THURSDAY MORNING WILL PRODUCE
DANGEROUS RIP CURRENTS AND POSSIBLE MINOR BEACH EROSION...ESPECIALLY
AT HIGH TIDE. (HIGH TIDE TODAY AT ST ANDREWS BAY AT PANAMA CITY IS
345 PM CST). THUS THERE IS A HIGH RISK FOR RIP CURRENTS AND A HIGH
SURF ADVISORY IN IN EFFECT FOR WALTON AND BAY COUNTIES.

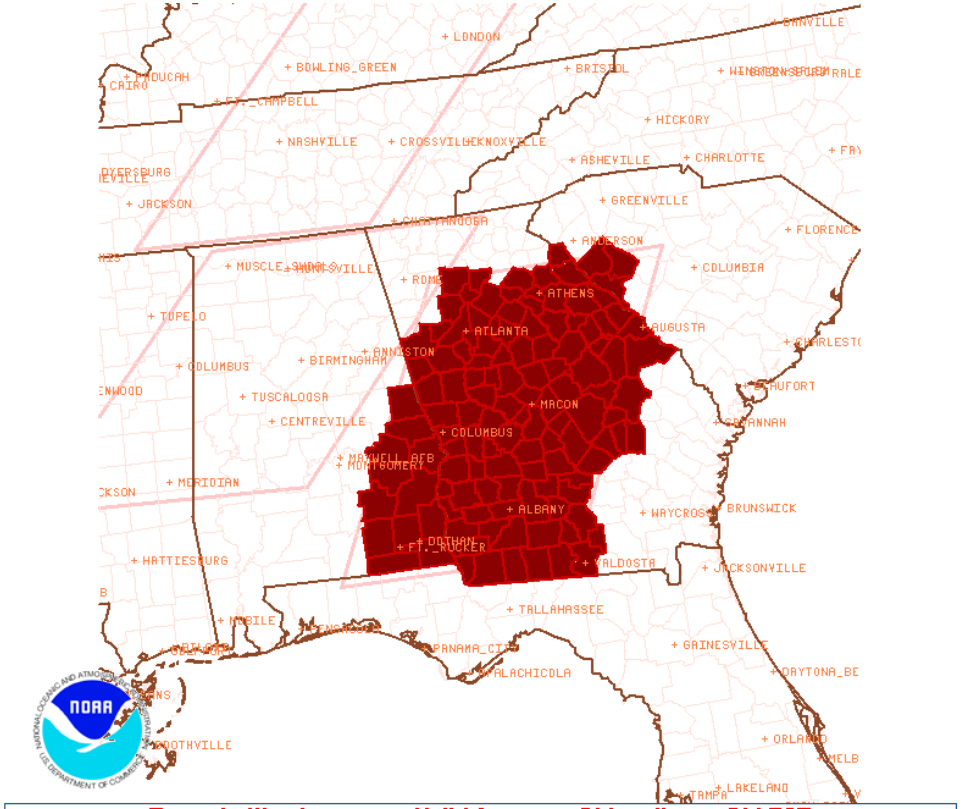
.DAYS TWO THROUGH SEVEN...THURSDAY THROUGH TUESDAY...
SKIES WILL CLEAR OUT ON THURSDAY IN THE WAKE OF THE FRONT. A LIGHT
FREEZE IS POSSIBLE LATE THURSDAY NIGHT...ESPECIALLY NORTH OF THE
FLORIDA BORDER ACROSS PORTIONS OF SOUTHEAST ALABAMA AND SOUTHERN
GEORGIA. HIGH PRESSURE THEN SETTLES OVERHEAD FRIDAY NIGHT
PROVIDING A GOOD RADIATIONAL COOLING SETUP...AND A MORE WIDESPREAD
LIGHT FREEZE AWAY FROM THE IMMEDIATE COAST. A VERY DRY AIRMASS
WILL FAVOR THE SPREAD OF WILDFIRES...SHOULD ANY OCCUR...THURSDAY
AND FRIDAY. ANOTHER FRONT WILL DELIVER A SHOT OF COLD AND DRY AIR
FOR THE END OF THE WEEKEND WITH A LIGHT FREEZE AGAIN POSSIBLE
SUNDAY NIGHT.

.SPOTTER INFORMATION STATEMENT...
SPOTTER ACTIVATION MAY BE REQUIRED LATE THIS AFTERNOON AND
TONIGHT.

FOR ADDITIONAL INFORMATION...VISIT THE NATIONAL WEATHER SERVICE
WEBSITE ON THE INTERNET AT WEATHER.GOV...THEN CLICK ON YOUR AREA
OF INTEREST ON THE NATIONAL MAP.

$$

BLOCK

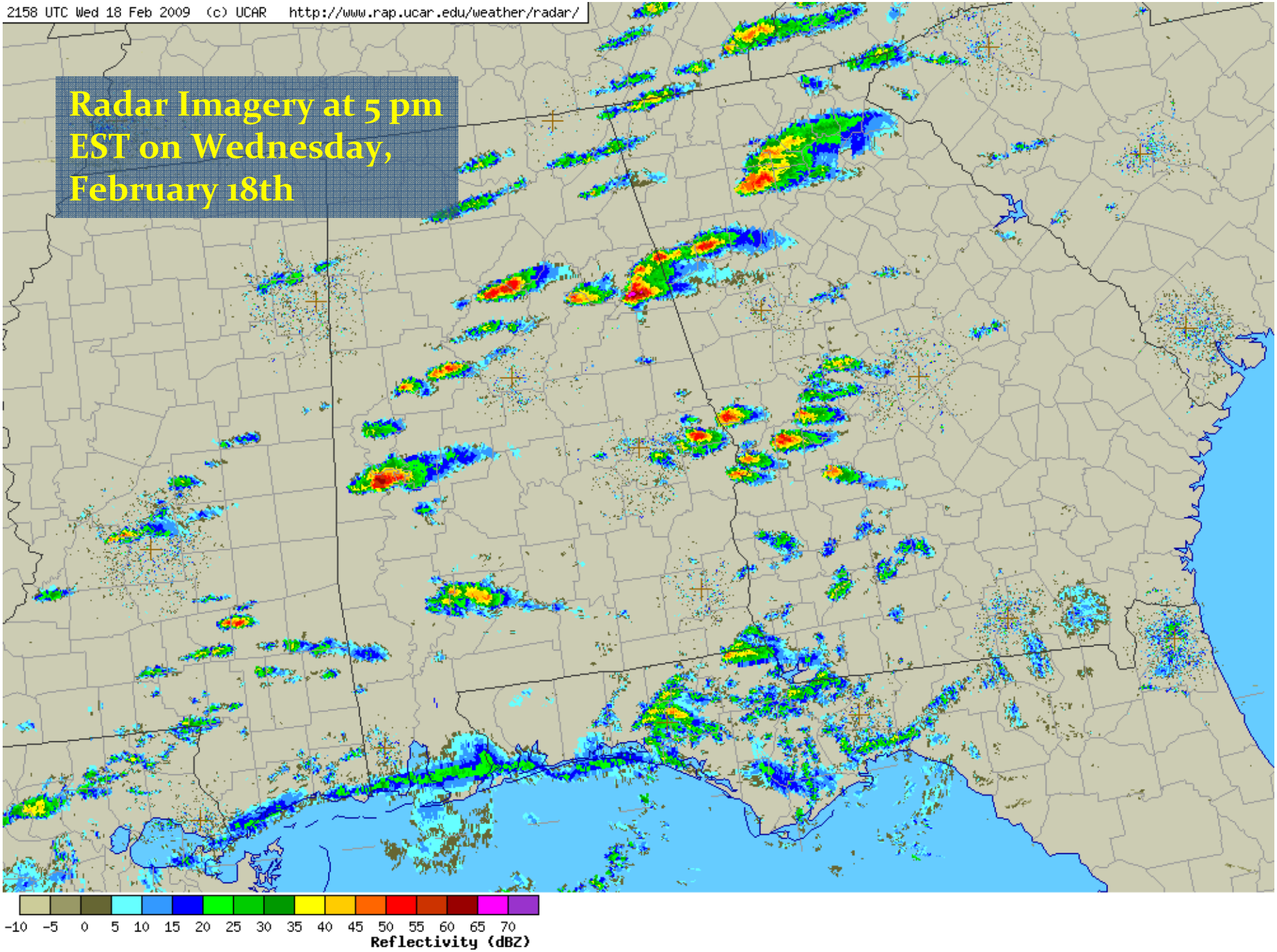


Tornado Watch # 25 - Valid from 335 PM until 1100 PM EST

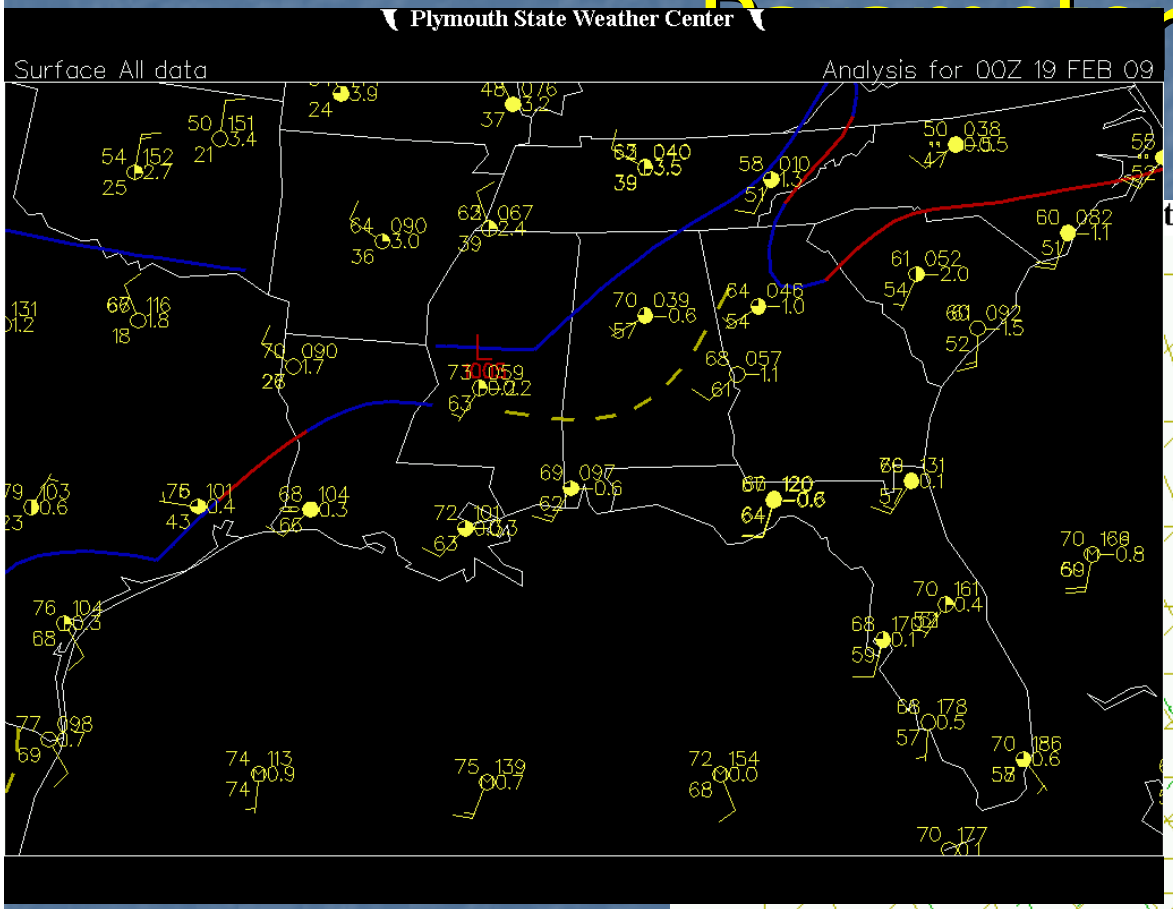
NOAA/NWS/Storm Prediction Center — Updated: 20090218/2036 UTC

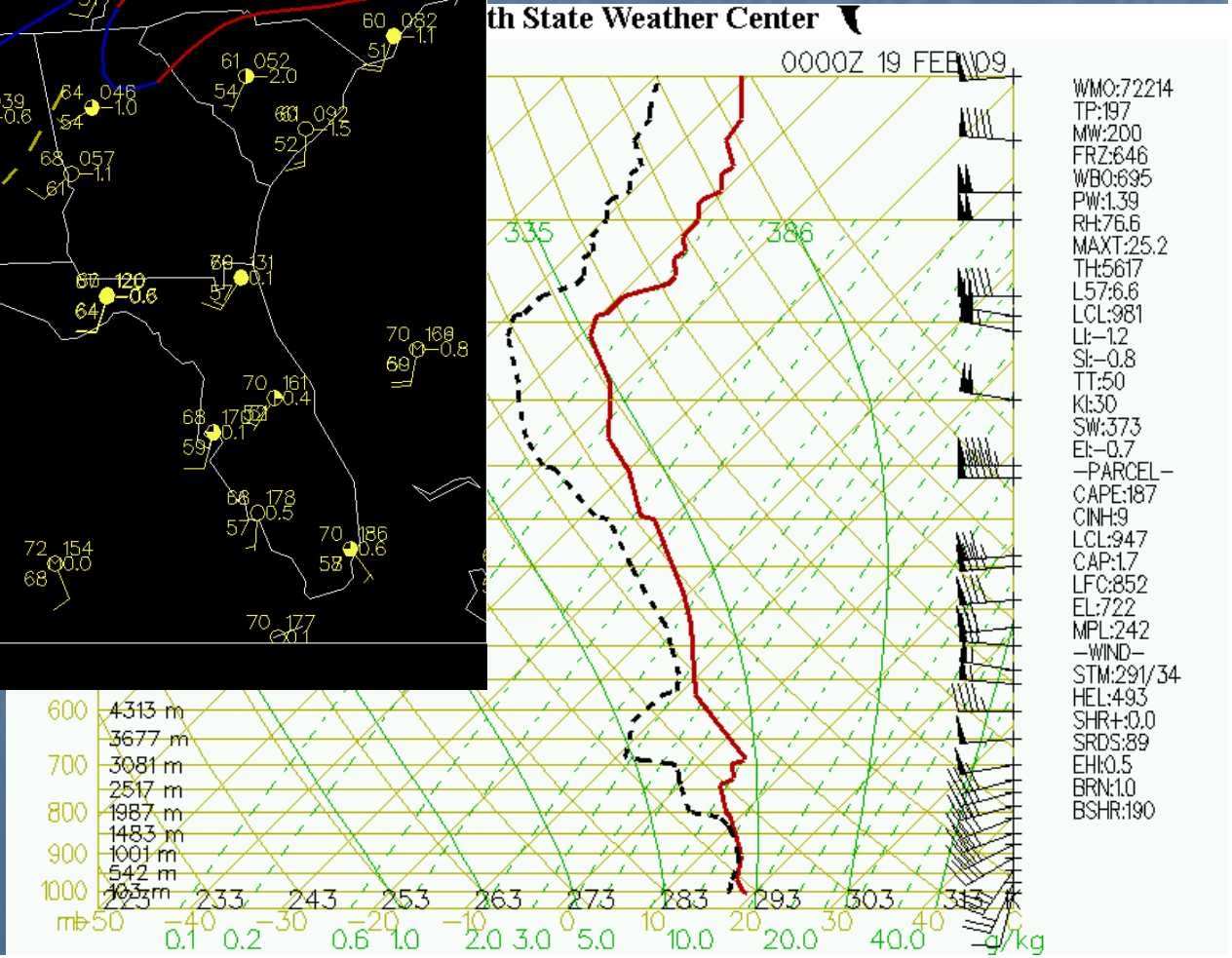
Tornado Watch Issued at 335 pm ET

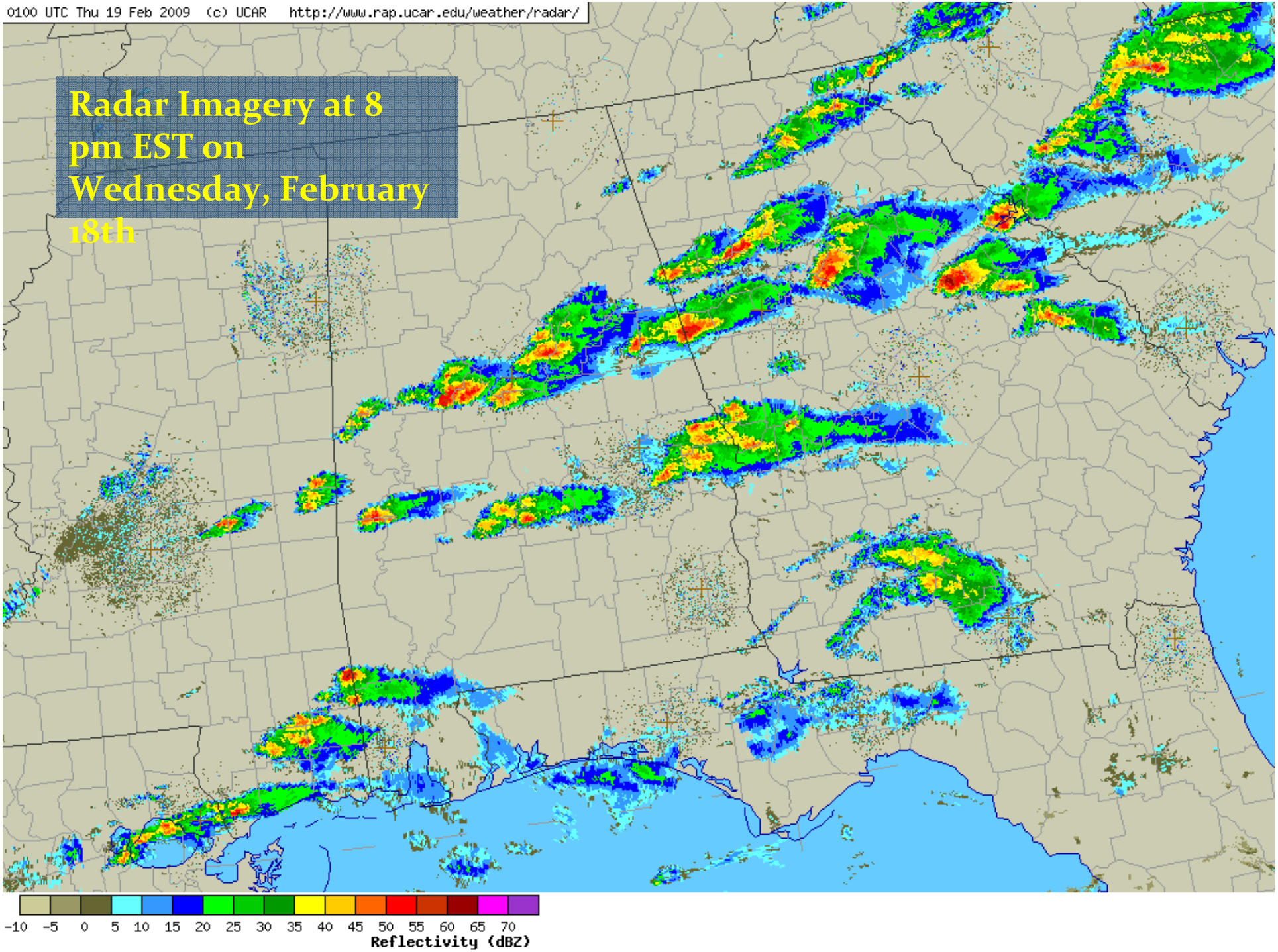
Includes a good portion of the forecast area


2158 UTC Wed 18 Feb 2009 (c) UCAR http://www.rap.ucar.edu/weather/radar/
Radar Imagery at 5 pm EST on Wednesday, February 18th
-10 -5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70
Reflectivity (dBZ)

Near Storm Environment Parameters






0100 UTC Thu 19 Feb 2009 (c) UCAR http://www.rap.ucar.edu/weather/radar/
Radar Imagery at 8 pm EST on Wednesday, February 18th
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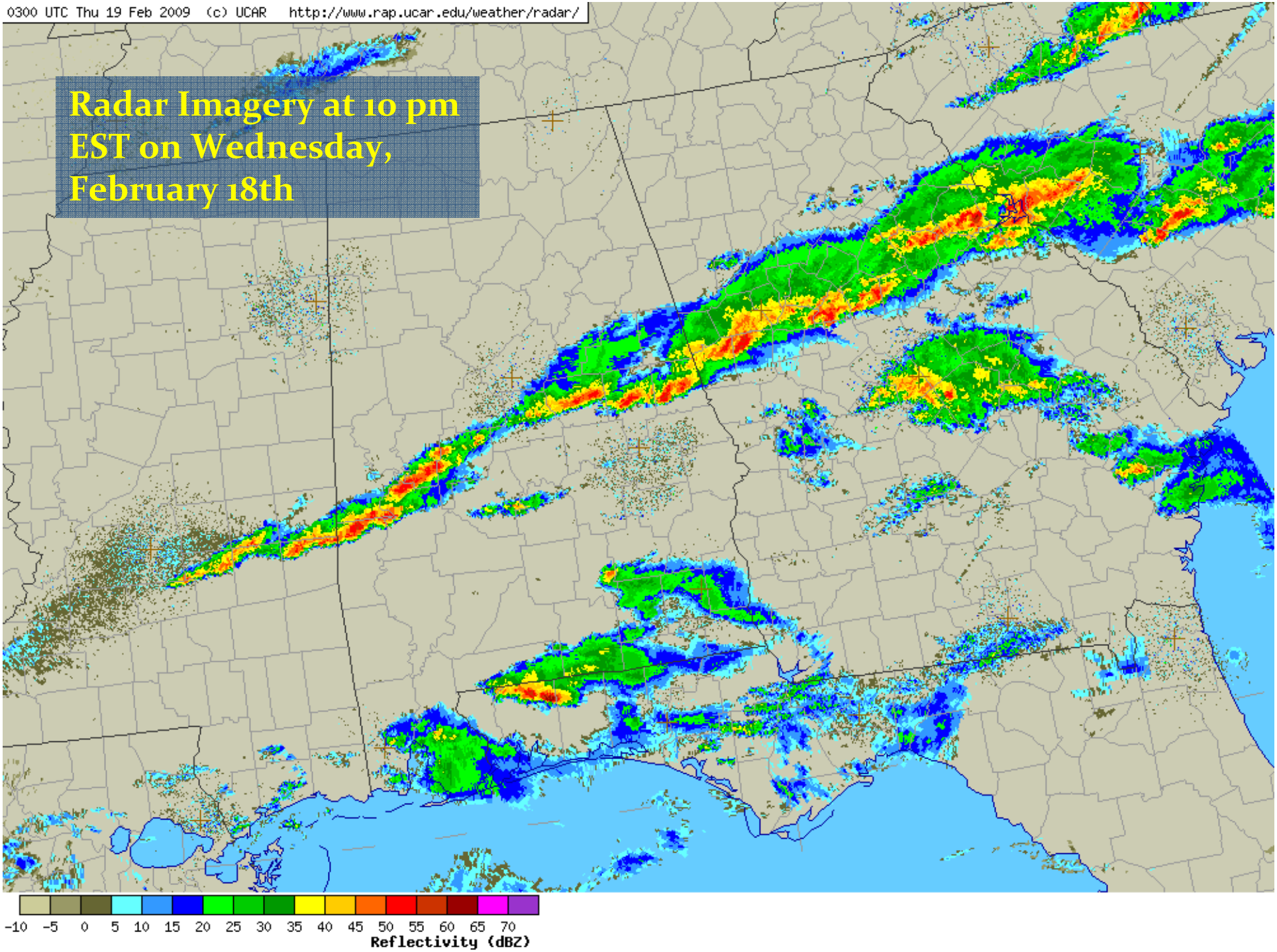
Reflectivity (dBZ)


0300 UTC Thu 19 Feb 2009 (c) UCAR http://www.rap.ucar.edu/weather/radar/
Radar Imagery at 10 pm EST on Wednesday, February 18th
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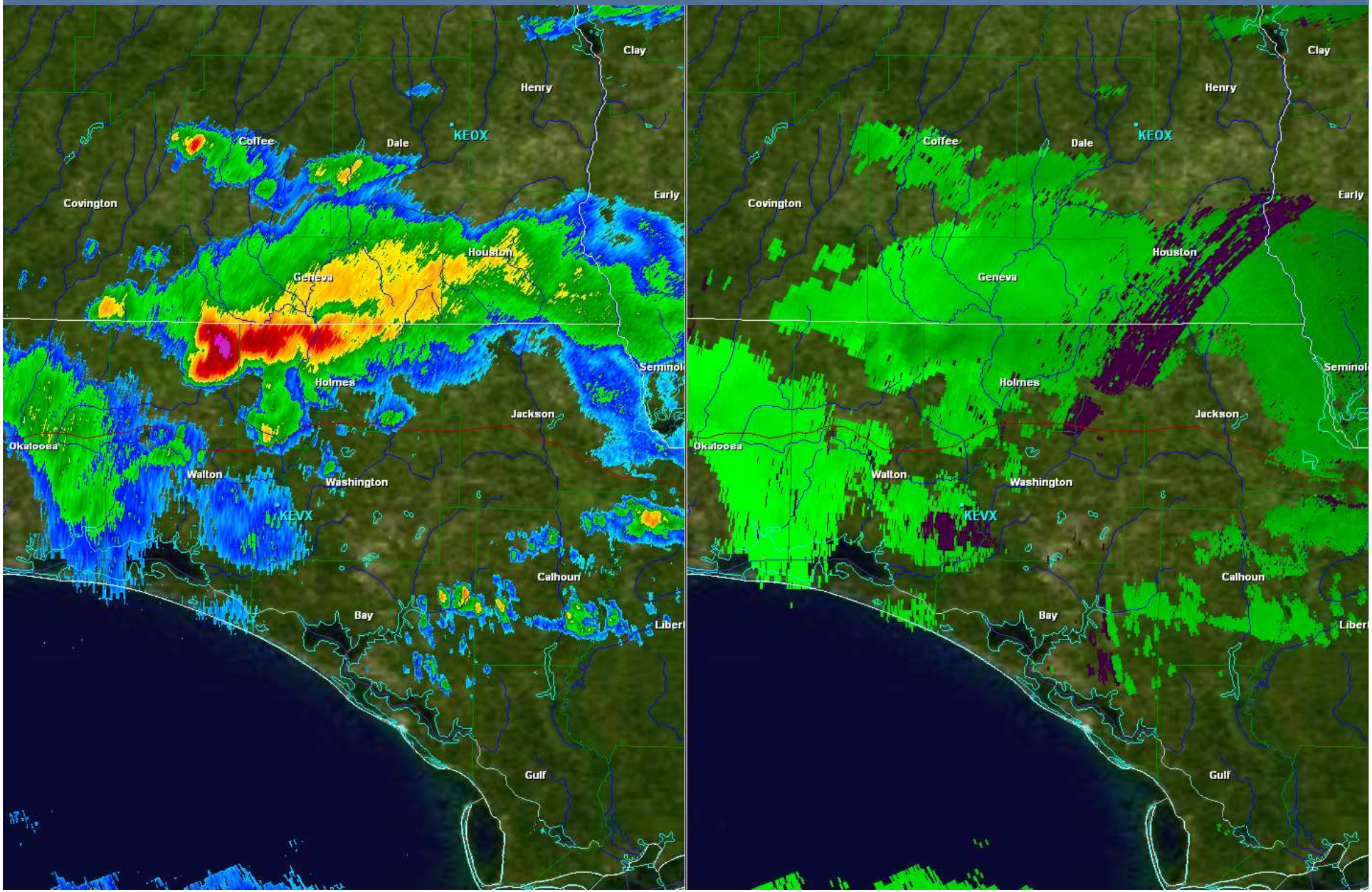
Reflectivity (dBZ)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Calhoun
Bay
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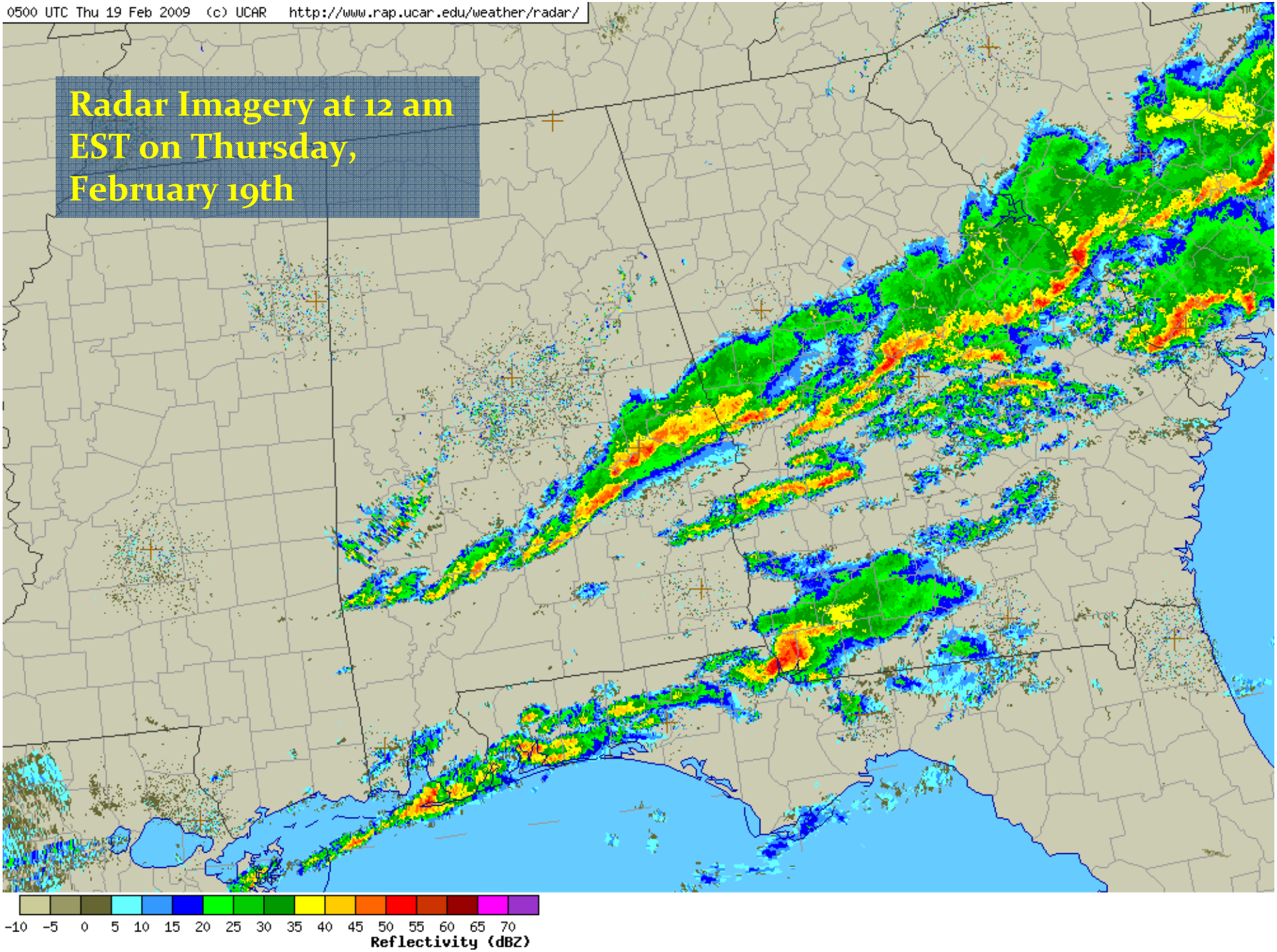
0500 UTC Thu 19 Feb 2009 (c) UCAR http://www.rap.ucar.edu/weather/radar/
Radar Imagery at 12 am EST on Thursday, February 19th
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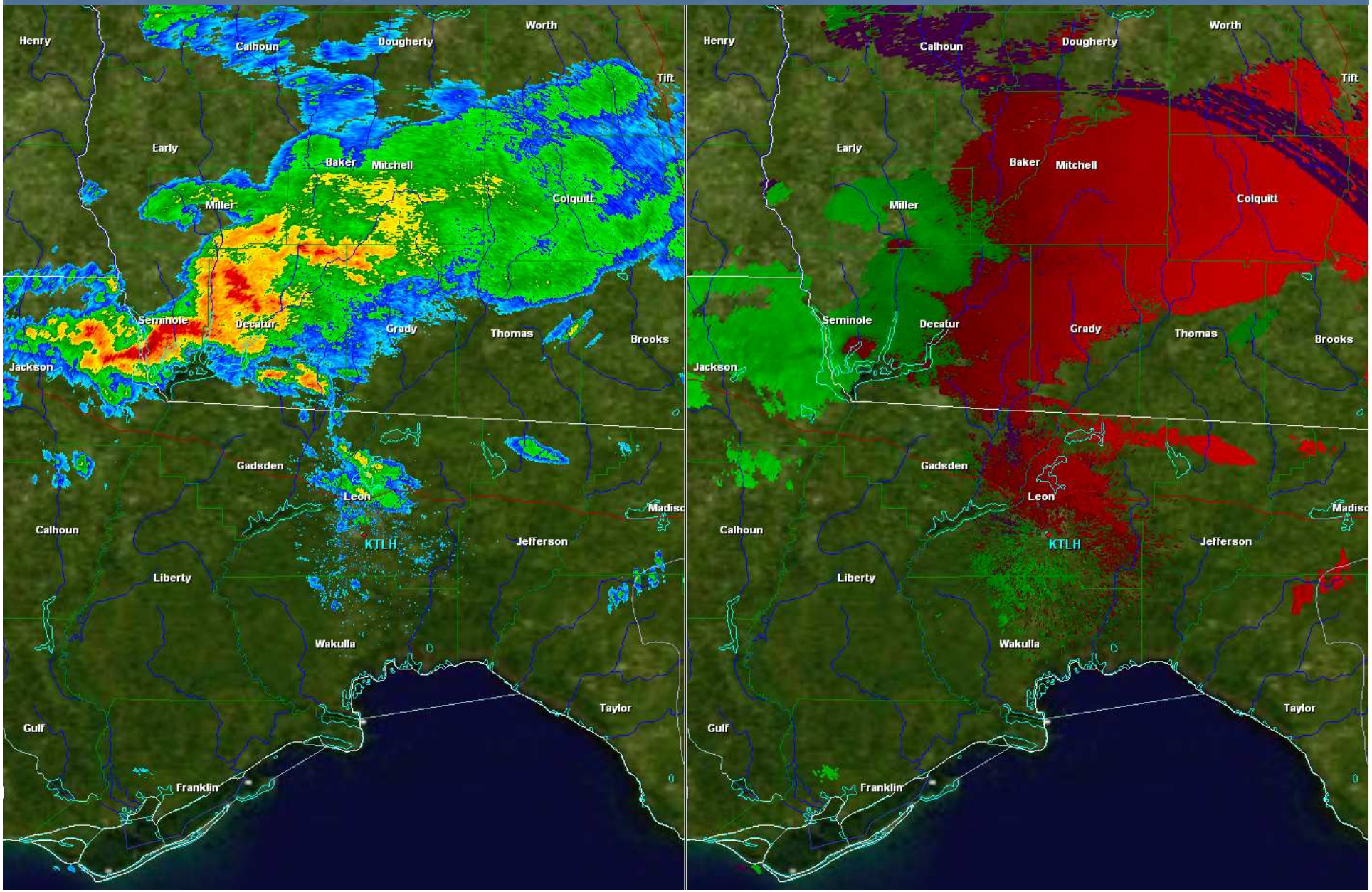
Reflectivity (dBZ)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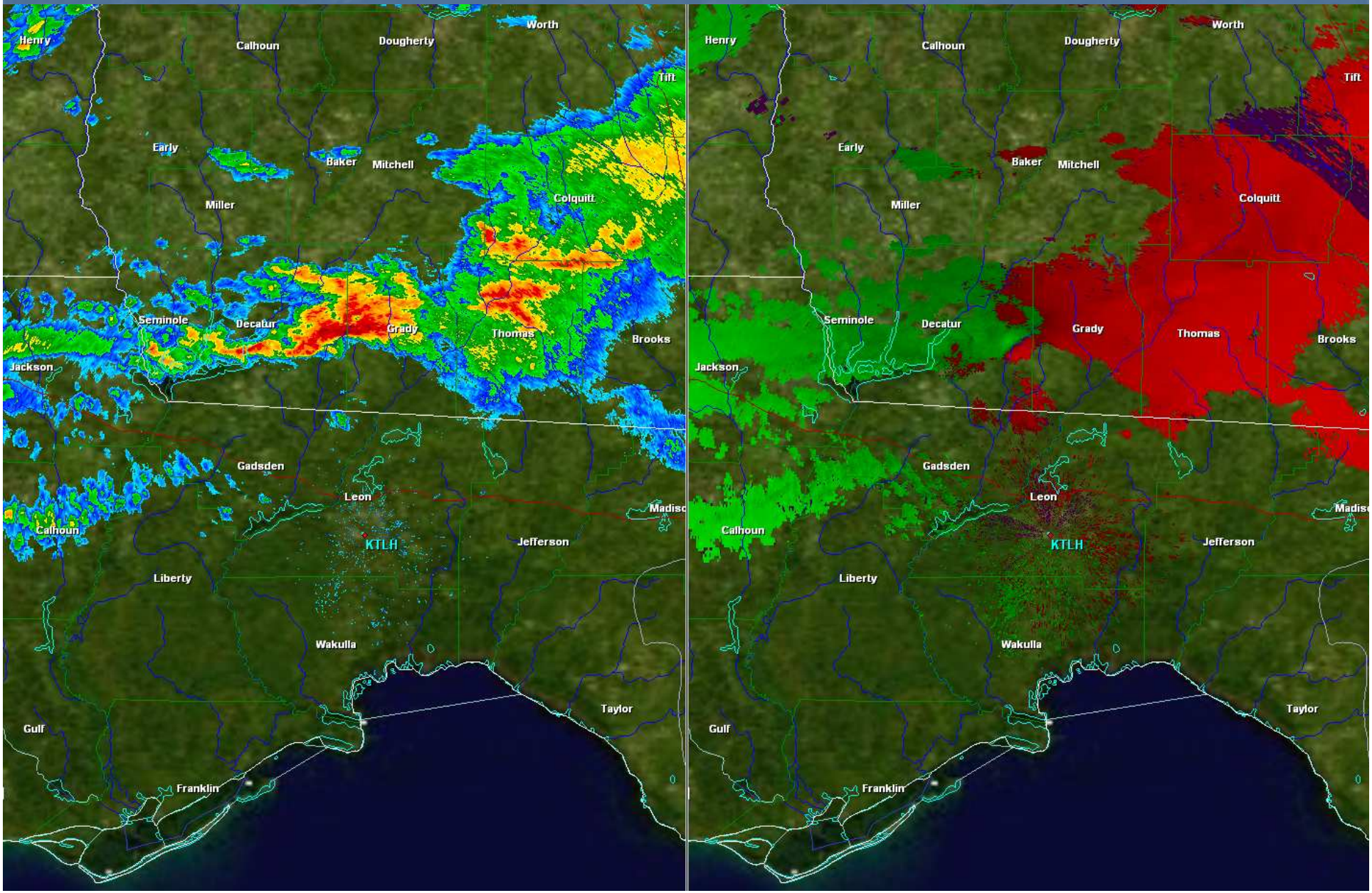
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BULLETIN - EAS ACTIVATION REQUESTED
TORNADO WARNING
NATIONAL WEATHER SERVICE TALLAHASSEE FL
1240 AM EST THU FEB 19 2009

THE NATIONAL WEATHER SERVICE IN TALLAHASSEE HAS ISSUED A

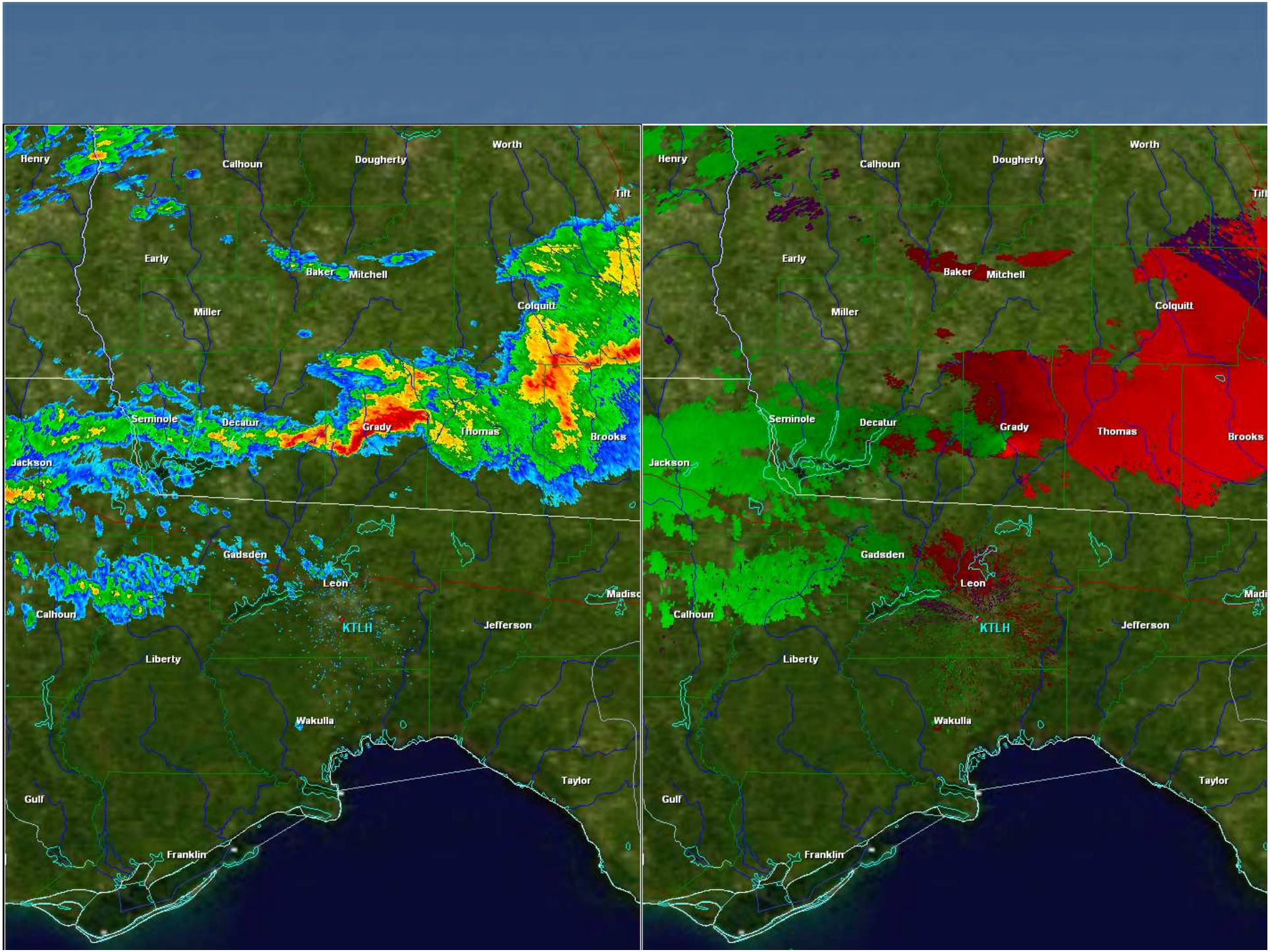
* TORNADO WARNING FOR...
  CENTRAL GRADY COUNTY IN SOUTHWEST GEORGIA...
  THIS INCLUDES THE CITY OF CAIRO...

* UNTIL 115 AM EST

* AT 1233 AM EST...NATIONAL WEATHER SERVICE DOPPLER RADAR INDICATED A
  DEVELOPING TORNADO 11 MILES WEST OF WHIGHAM...OR 6 MILES SOUTHEAST
  OF BAINBRIDGE...MOVING EAST AT 50 MPH.

* THE TORNADO WILL BE NEAR...
  WHIGHAM BY 1245 AM EST...
  CAIRO BY 1255 AM EST...

IN ADDITION TO THE TORNADO...THIS STORM IS CAPABLE OF PRODUCING GOLF
BALL SIZE HAIL AND DESTRUCTIVE STRAIGHT LINE WINDS IN EXCESS OF 70
MPH.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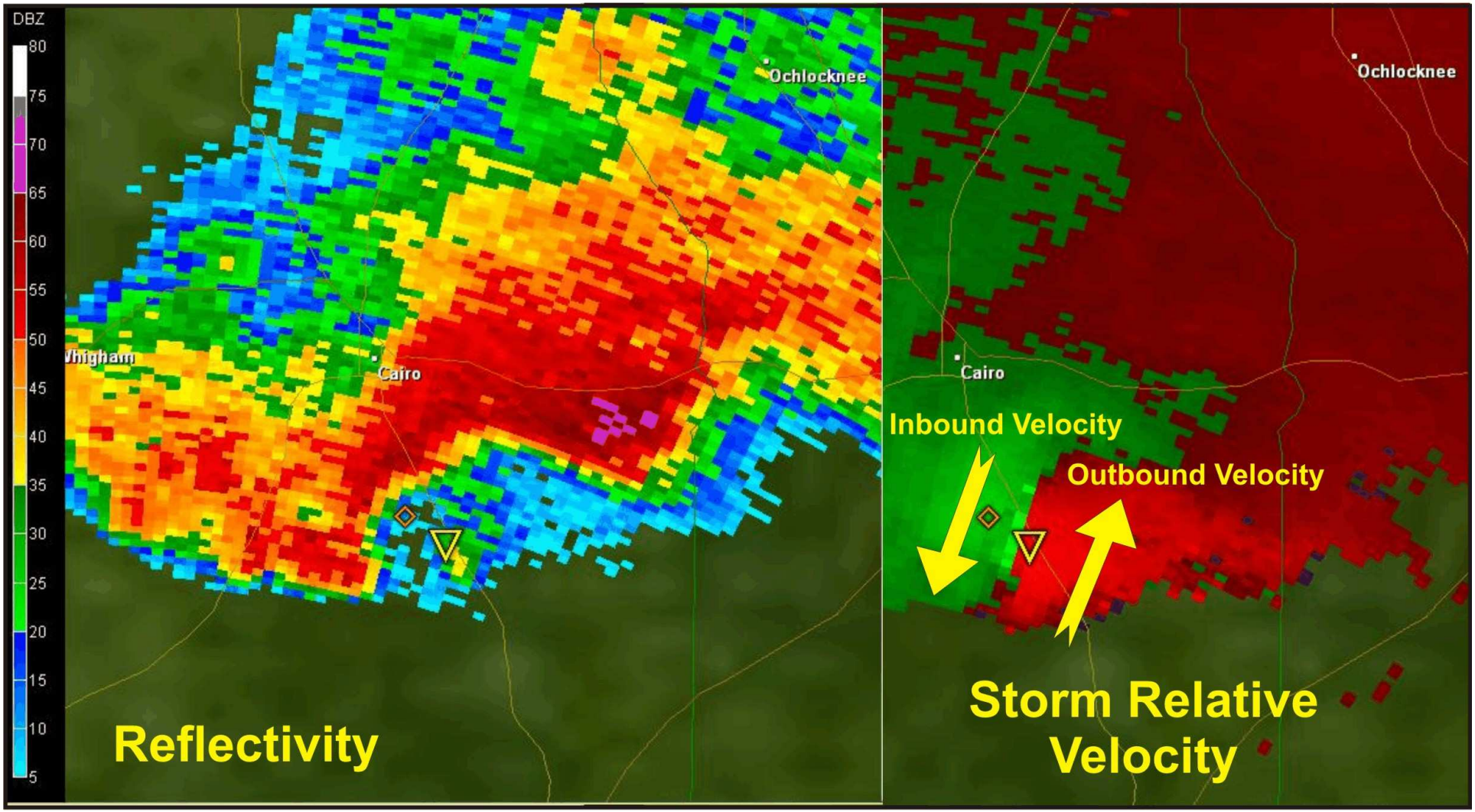
19Feb2009 0550 UTC (12:50am EST)



Zoomed Image from KTLH Radar

SEVERE WEATHER STATEMENT
NATIONAL WEATHER SERVICE TALLAHASSEE FL
1249 AM EST THU FEB 19 2009

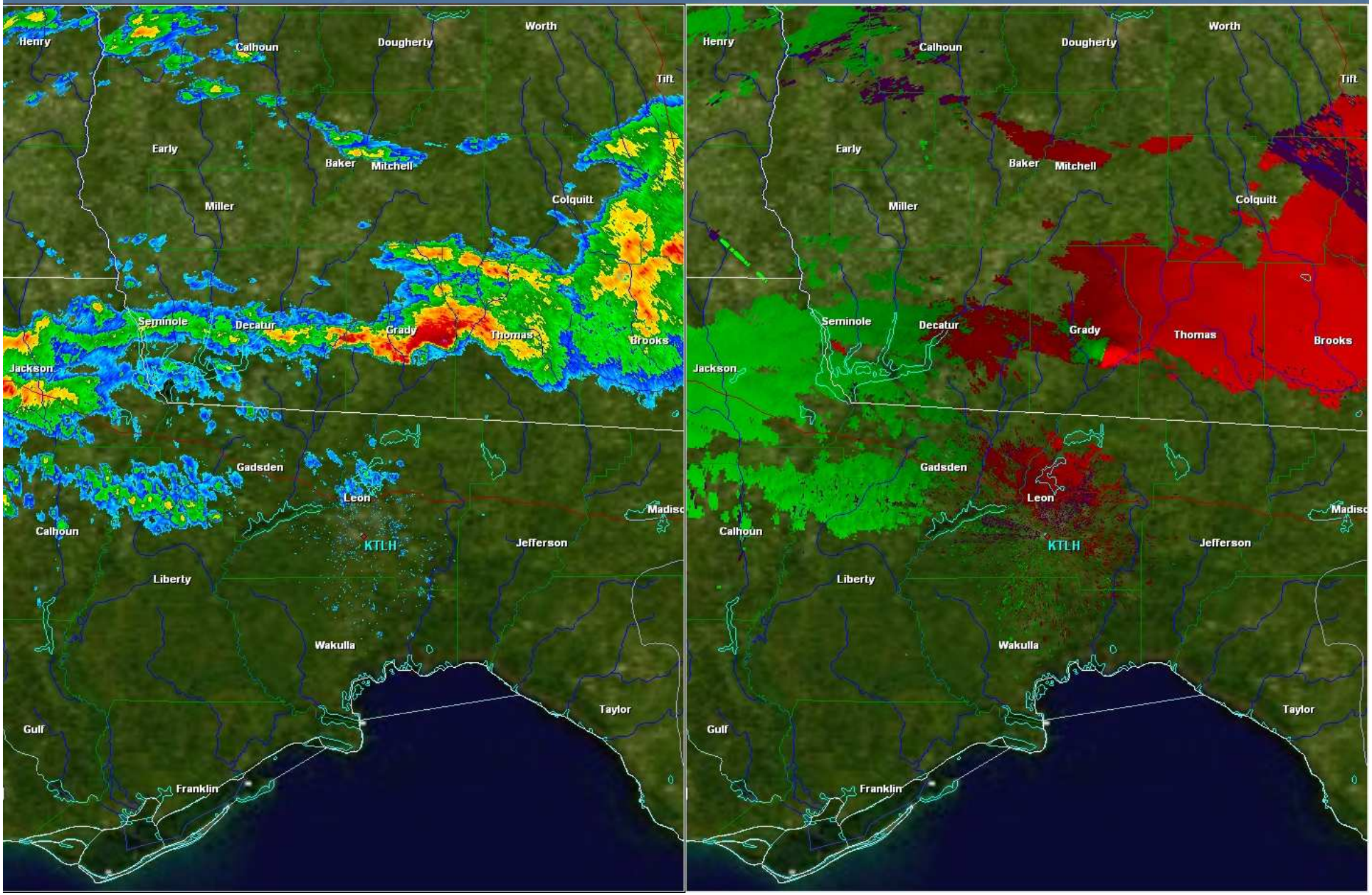
GAC131-190615-
/O.CON.KTAE.TO.W.0004.000000T0000Z-090219T0615Z/
GRADY GA-
1247 AM EST THU FEB 19 2009

...A TORNADO WARNING REMAINS IN EFFECT UNTIL 115 AM EST FOR CENTRAL GRADY COUNTY...

AT 1244 AM EST...NATIONAL WEATHER SERVICE DOPPLER RADAR CONTINUED TO INDICATE A TORNADO. THIS TORNADO WAS LOCATED NEAR NICKLEVILLE...OR 8 MILES SOUTHWEST OF CAIRO...MOVING EAST AT 75 MPH.

THE TORNADO WILL BE NEAR...
PINE PARK BY 1255 AM EST...

THIS IS AN EXTREMELY DANGEROUS AND LIFE THREATENING SITUATION. THIS STORM IS CAPABLE OF PRODUCING STRONG TO VIOLENT TORNADOES. IF YOU ARE IN THE PATH OF THIS TORNADO...TAKE COVER IMMEDIATELY! A LARGE AND DESTRUCTIVE TORNADO IS LIKELY ON THE GROUND AND CAUSING SIGNIFICANT DAMAGE. SEEK A STURDY STRUCTURE IMMEDIATELY!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BULLETIN - EAS ACTIVATION REQUESTED
TORNADO WARNING
NATIONAL WEATHER SERVICE TALLAHASSEE FL
1256 AM EST THU FEB 19 2009

THE NATIONAL WEATHER SERVICE IN TALLAHASSEE HAS ISSUED A

* TORNADO WARNING FOR...
  CENTRAL THOMAS COUNTY IN SOUTH CENTRAL GEORGIA...
  THIS INCLUDES THE CITY OF THOMASVILLE...
  EAST CENTRAL GRADY COUNTY IN SOUTHWEST GEORGIA...

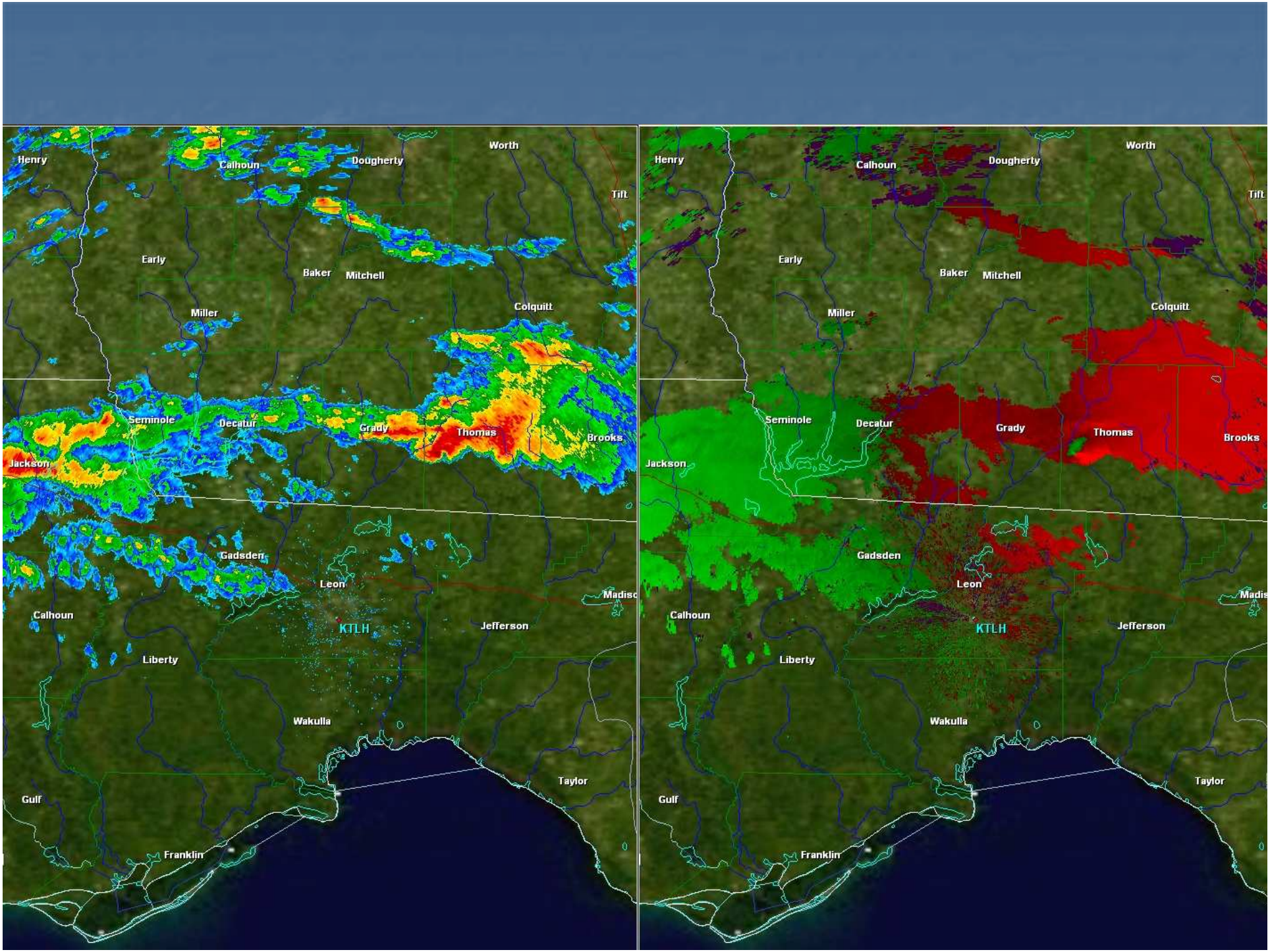
* UNTIL 145 AM EST

* AT 1250 AM EST...NATIONAL WEATHER SERVICE DOPPLER RADAR INDICATED A
  DEVELOPING TORNADO 15 MILES WEST OF THOMASVILLE...OR NEAR CAIRO...
  MOVING EAST AT 60 MPH.

* THE TORNADO WILL BE NEAR...
  THOMASVILLE BY 105 AM EST...
  BOSTON BY 115 AM EST...

IN ADDITION TO THE TORNADO...THIS STORM IS CAPABLE OF PRODUCING GOLF BALL SIZE HAIL AND DESTRUCTIVE STRAIGHT LINE WINDS IN EXCESS OF 70 MPH.

THIS IS AN EXTREMELY DANGEROUS AND LIFE THREATENING SITUATION. THIS STORM IS CAPABLE OF PRODUCING STRONG TO VIOLENT TORNADOES. IF YOU ARE IN THE PATH OF THIS TORNADO...TAKE COVER IMMEDIATELY IN A STURDY STRUCTURE AND STAY AWAY FROM WINDOWS!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SEVERE WEATHER STATEMENT
NATIONAL WEATHER SERVICE TALLAHASSEE FL
116 AM EST THU FEB 19 2009

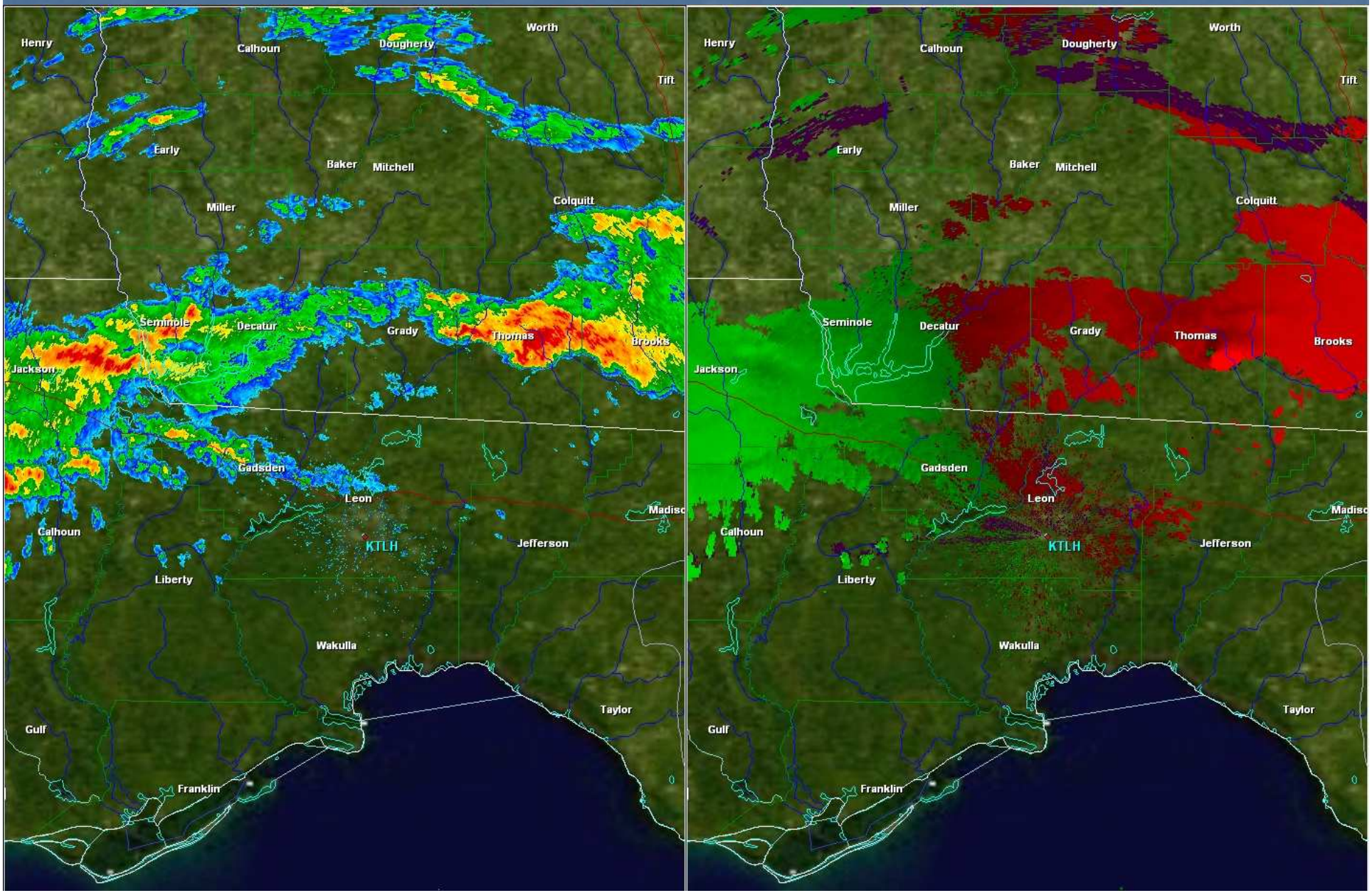
GAC131-275-190645-
/O.CON.KTAE.TO.W.0005.000000T0000Z-090219T0645Z/
THOMAS GA-GRADY GA-
115 AM EST THU FEB 19 2009

...A TORNADO WARNING REMAINS IN EFFECT UNTIL 145 AM EST FOR EAST CENTRAL GRADY AND CENTRAL THOMAS COUNTIES...

AT 112 AM EST...NATIONAL WEATHER SERVICE DOPPLER RADAR AND LAW ENFORCEMENT WAS TRACKING A LARGE AND EXTREMELY DANGEROUS TORNADO. THIS TORNADO WAS LOCATED NEAR THOMASVILLE...MOVING EAST AT 40 MPH.

OTHER LOCATIONS IN THE WARNING INCLUDE BUT ARE NOT LIMITED TO DILLON...THOMASVILLE MUNI A/P...MERRILLVILLE...EASON...FIVE POINTS... BOSTON AND BARWICK.

THIS IS A VERY DANGEROUS AND LIFE THREATENING SITUATION. NUMEROUS REPORTS OF SIGNIFICANT DAMAGE HAVE BEEN RECEIVED ACROSS GRADY AND WESTERN THOMAS COUNTY. IF YOU ARE IN THE PATH OF THIS STORM YOU MUST SEEK SHELTER IN A STURDY SHELTER IMMEDIATELY! THIS IS A LIFE THREATENING SITUATION!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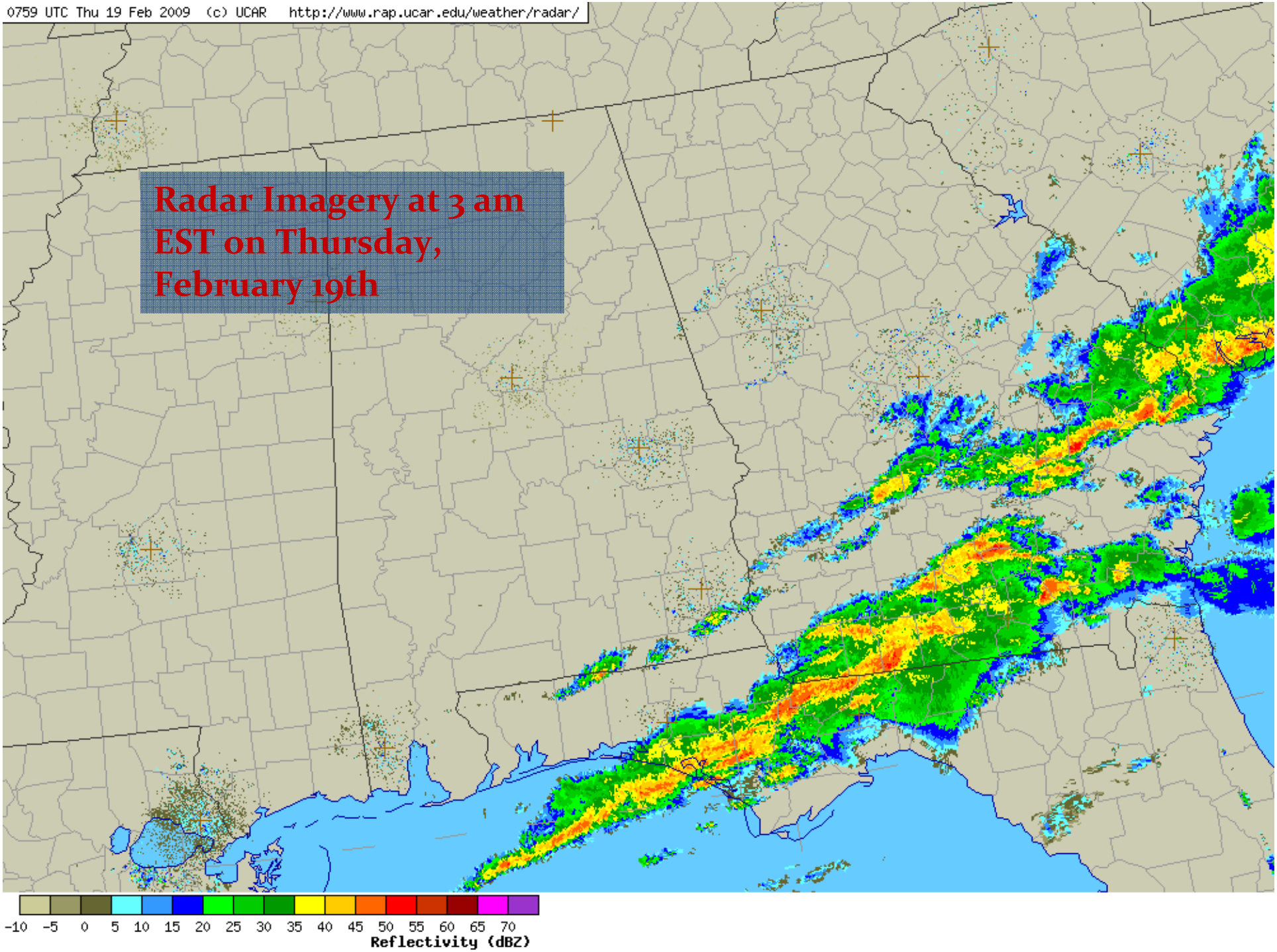
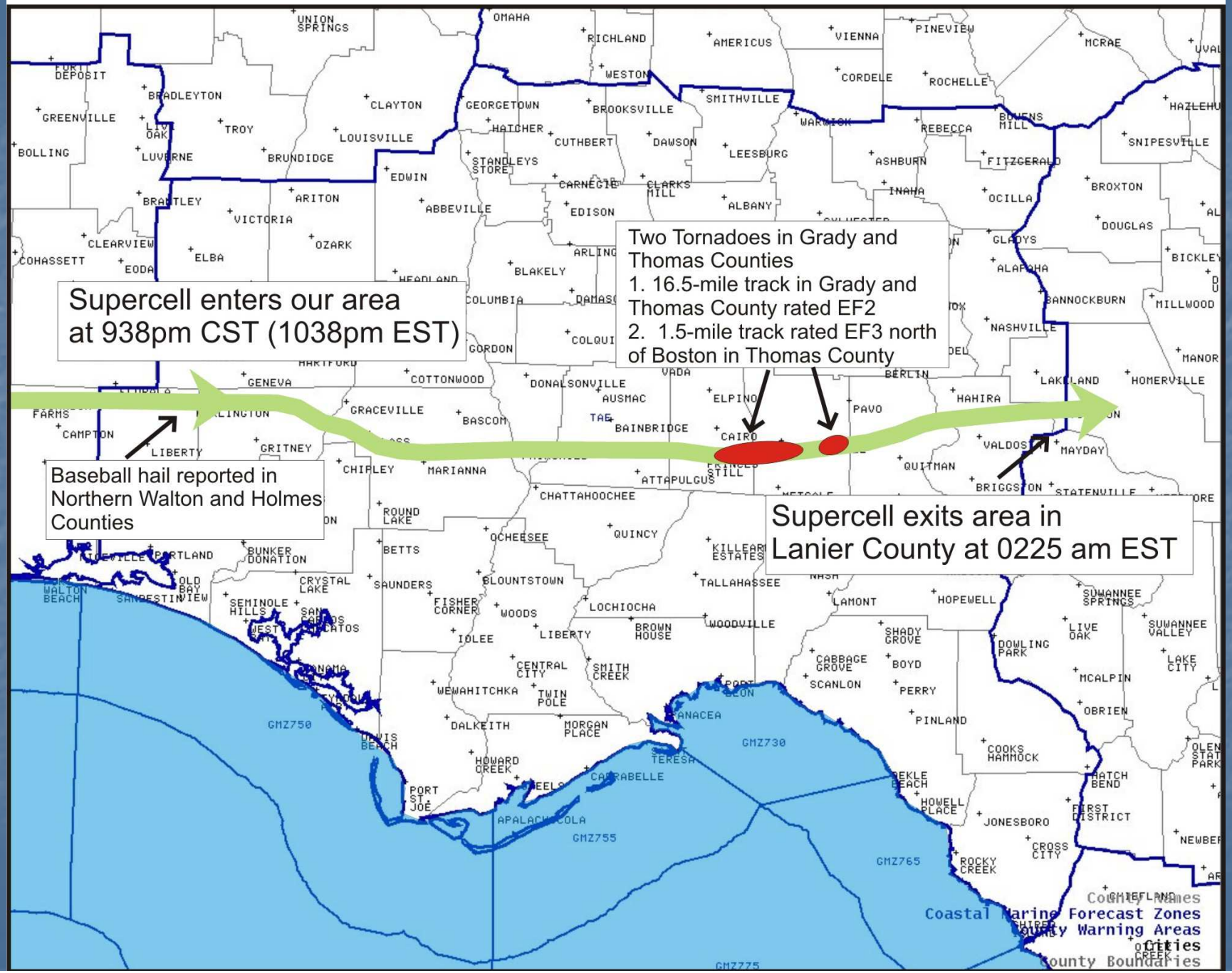
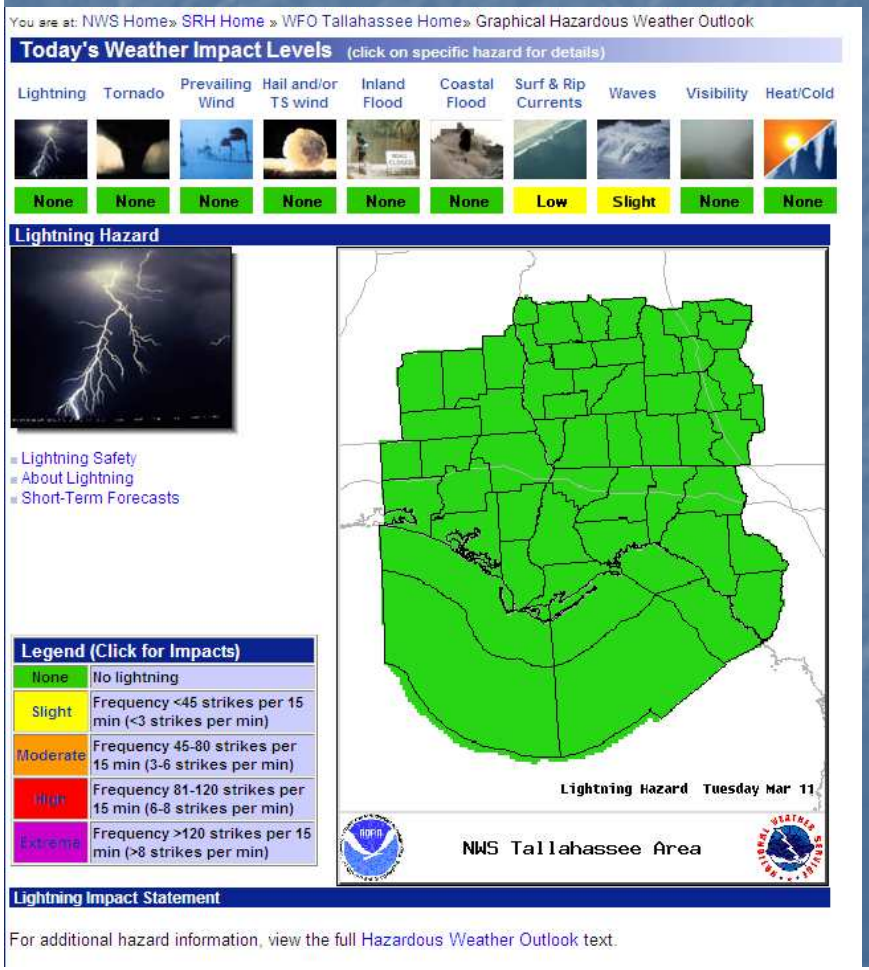

0759 UTC Thu 19 Feb 2009 (c) UCAR http://www.rap.ucar.edu/weather/radar/
Radar Imagery at 3 am EST on Thursday, February 19th
-10 -5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70
Reflectivity (dBZ)

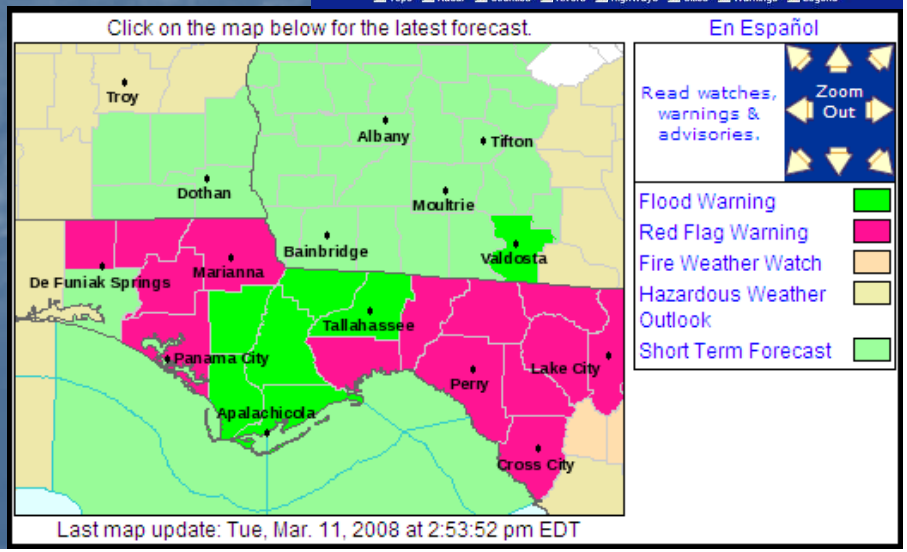
Longtrack Supercell 19 Feb2009



Tools to use

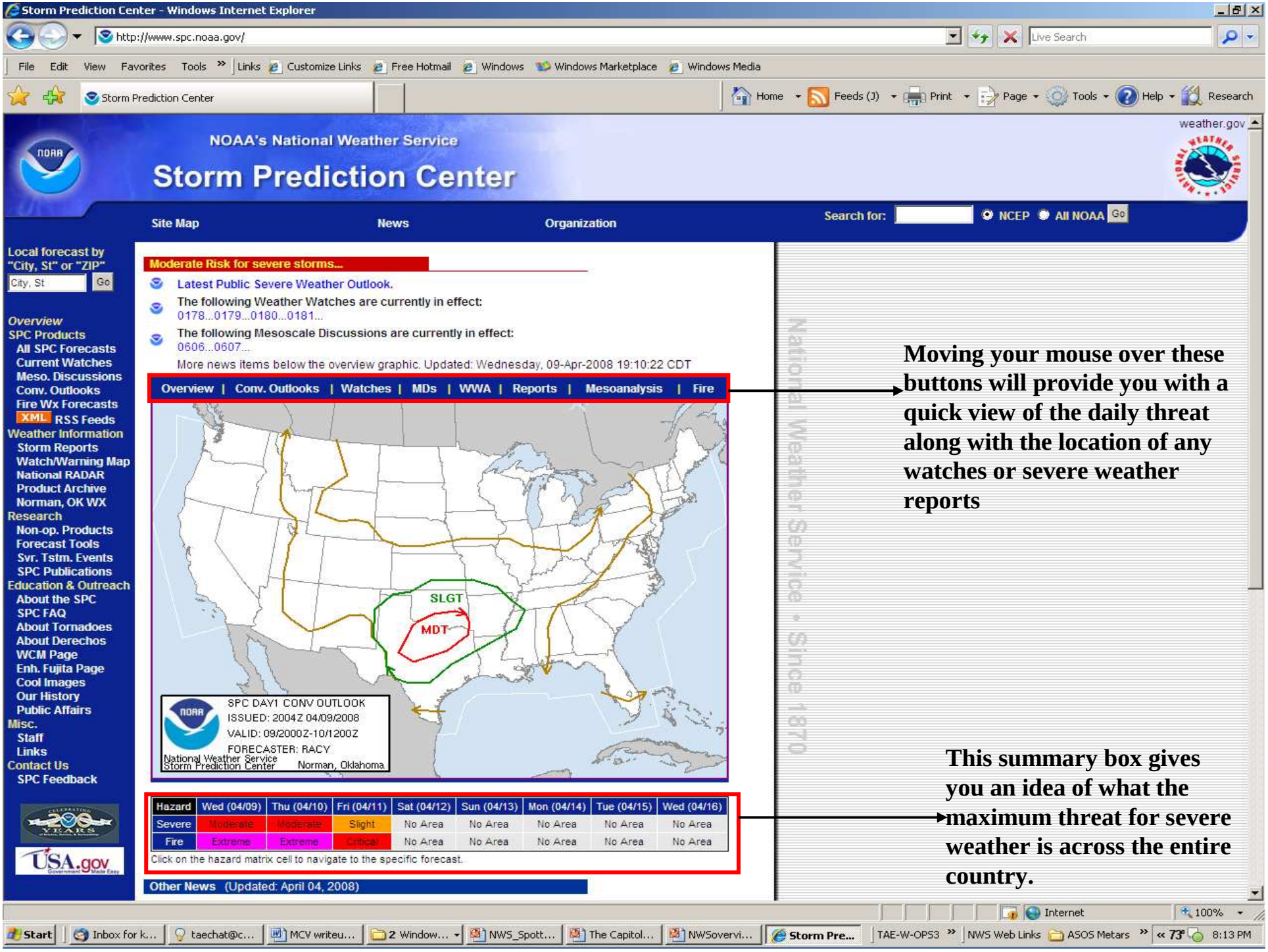
- Our main page: http://www.srh.noaa.gov/tlh
- Graphical Hazardous Weather Outlook
- Ridge Radar Display





Storm Prediction Center

- Provides daily outlook for organized severe weather.
- Outlooks for Day 1, Day 2, Day 3, and Days 4-8 issued daily
- Threat levels of Slight, Moderate, or High
- http://www.spc.noaa.gov


Storm Prediction Center - Windows Internet Explorer
http://www.spc.noaa.gov/
NOAA's National Weather Service
Storm Prediction Center
weather.gov
Site Map
News
Organization
Search for:
NCEP
All NOAA
Go
Local forecast by "City, St" or "ZIP"
City, St
Overview
SPC Products
All SPC Forecasts
Current Watches
Meso. Discussions
Conv. Outlooks
Fire Wx Forecasts
XML RSS Feeds
Weather Information
Storm Reports
Watch/Warning Map
National RADAR
Product Archive
Norman, OK WX
Research
Non-op. Products
Forecast Tools
Svr. Tstm. Events
SPC Publications
Education & Outreach
About the SPC
SPC FAQ
About Tornadoes
About Derechos
WCM Page
Enh. Fujita Page
Cool Images
Our History
Public Affairs
Misc.
Staff
Links
Contact Us
SPC Feedback
Moderate Risk for severe storms...
Latest Public Severe Weather Outlook.
The following Weather Watches are currently in effect:
0178...0179...0180...0181...
The following Mesoscale Discussions are currently in effect:
0606...0607...
More news items below the overview graphic. Updated: Wednesday, 09-Apr-2008 19:10:22 CDT
Overview | Conv. Outlooks | Watches | MDs | WWA | Reports | Mesoanalysis | Fire
SLGT
MDT
SPC DAY1 CONV OUTLOOK
ISSUED: 2004Z 04/09/2008
VALID: 09/2000Z-10/1200Z
FORECASTER: RACY
National Weather Service
Storm Prediction Center
Norman, Oklahoma
Hazard | Wed (04/09) | Thu (04/10) | Fri (04/11) | Sat (04/12) | Sun (04/13) | Mon (04/14) | Tue (04/15) | Wed (04/16)
Severe | Moderate | Moderate | Slight | No Area | No Area | No Area | No Area | No Area
Fire | Extreme | Extreme | Critical | No Area | No Area | No Area | No Area | No Area
Click on the hazard matrix cell to navigate to the specific forecast.
Other News (Updated: April 04, 2008)
National Weather Service • Since 1870
Moving your mouse over these buttons will provide you with a quick view of the daily threat along with the location of any watches or severe weather reports
This summary box gives you an idea of what the maximum threat for severe weather is across the entire country.

Lightning Safety

Lightning Safety

- Lightning strikes the Earth 20 million times per year, on average.
- Most lightning fatalities and injuries occur when people are caught outdoors in the summer months.
- The safest place to remain is indoors and away from windows and electrical appliances
- Avoid being the tallest object, and stay away from other tall objects such as isolated trees.
- If you can hear thunder, you are in danger of being struck by lightning. Take shelter.

Lightning Myths

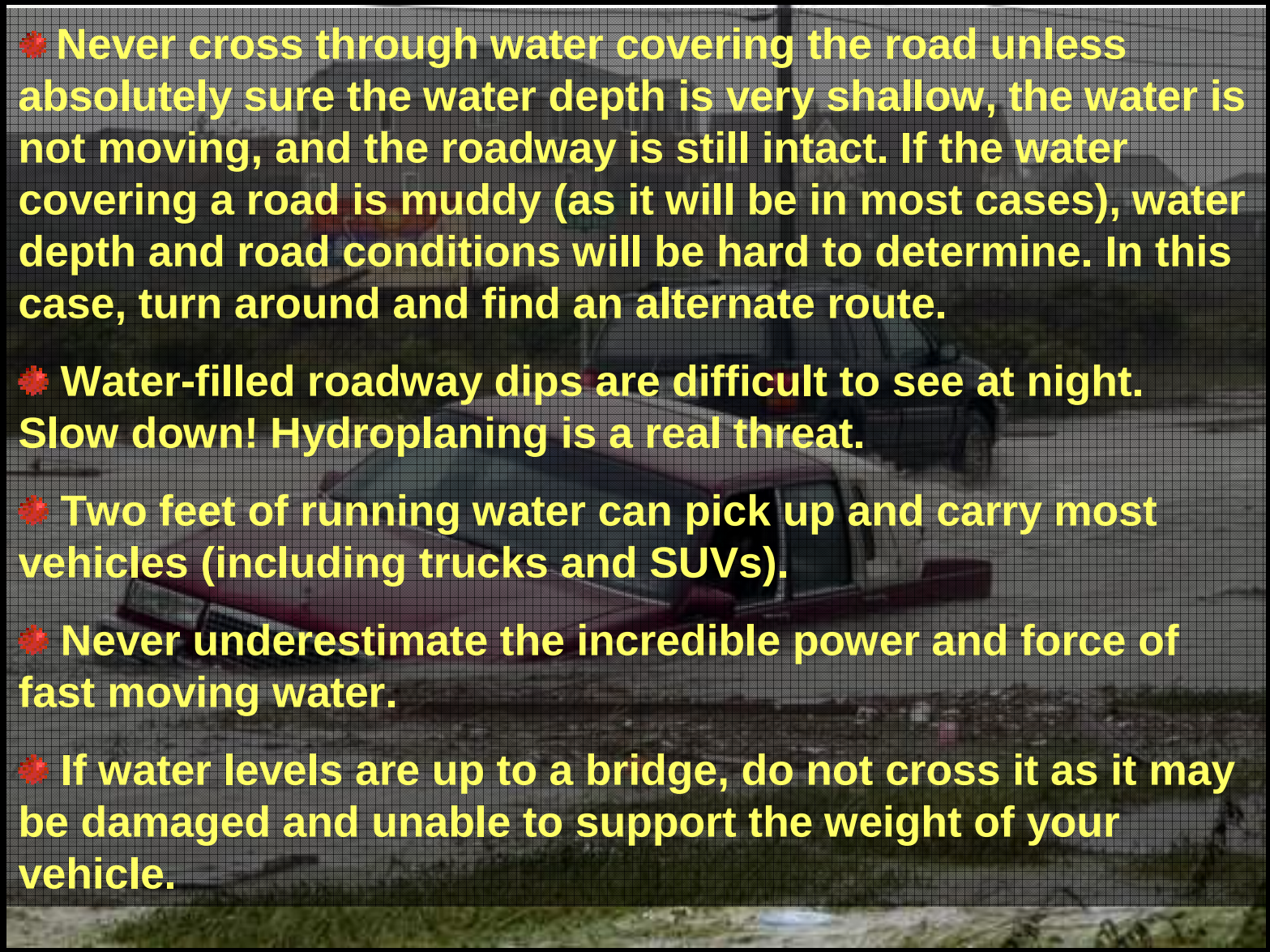
Myth: If it is not raining, then there is no danger from lightning.

Truth: Lightning often strikes out of heavy rain and may occur as far as 10 miles away from any rainfall. (Bolt out of the blue.)

Myth: Tue rubber sole of shoes or rubber tires on a car will protect you from being struck by lightning.

Truth: Rubber-soled shoes or rubber tires on a car provide no protection from lightning. The steel frame of a hard-topped vehicle provides increase protection if you are not touching metal. You are much safer inside an enclosed vehicle than standing outside.

Flood Safety



- Never cross through water covering the road unless absolutely sure the water depth is very shallow, the water is not moving, and the roadway is still intact. If the water covering a road is muddy (as it will be in most cases), water depth and road conditions will be hard to determine. In this case, turn around and find an alternate route.
- Water-filled roadway dips are difficult to see at night. Slow down! Hydroplaning is a real threat.
- Two feet of running water can pick up and carry most vehicles (including trucks and SUVs).
- Never underestimate the incredible power and force of fast moving water.
- If water levels are up to a bridge, do not cross it as it may be damaged and unable to support the weight of your vehicle.

Flood Safety

It may just be a whole lot deeper than what you think!

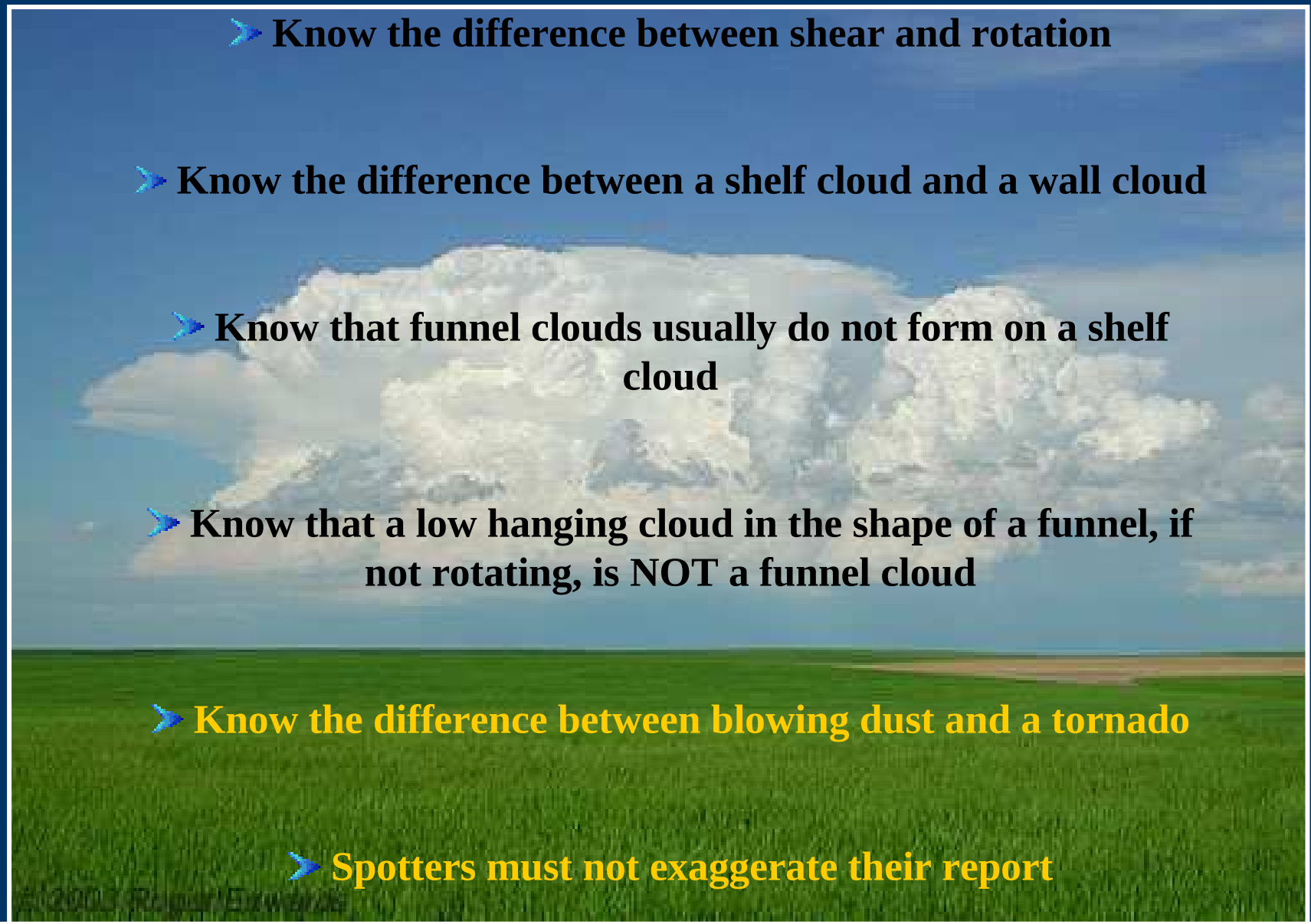
Remember, boats float, cars don’t.

http://tadd.weather.gov

Don’t risk it and become a statistic

Story County, IA

Spotters Must



- Know the difference between shear and rotation
- Know the difference between a shelf cloud and a wall cloud
- Know that funnel clouds usually do not form on a shelf cloud
- Know that a low hanging cloud in the shape of a funnel, if not rotating, is NOT a funnel cloud
- Know the difference between blowing dust and a tornado
- Spotters must not exaggerate their report

Myths

- **Myth - I heard a loud noise and it sounded like a train…it had to be a tornado.**

Truth - Any very strong wind will make a "roaring" noise or sound like a train – the sound depends on the wind speed, local terrain, obstructions to flow, and atmospheric conditions.

- **Myth - The wind twisted the metal on my shed…the trees that were blown down are twisted…it had to be a tornado.**

Truth - One generally cannot look at any individual object to determine if the damage was caused by a tornado or straight-line wind. The total damage pattern and how the debris is strewn in relation to other debris is a better indicator of the causative effect. A straight-line wind can cause an object to twist as the destructive force of the wind on an object can cause uneven stress loads with different failure points.

- **Myth - Objects like lakes, rivers, and hills protect areas from getting hit by a tornado.**

Truth – Nothing more than folklore. These features provide no protection or have any bearing on the development or movement of a tornado. Some thought tornadoes would not strike the downtown area of a large metropolitan city. Recent tornadoes in downtown Fort Worth, Salt Lake City and Nashville dispelled that myth.

Myths

- **Myth – Mobile homes attract tornadoes.**

Truth – Mobile homes are not more likely to get hit by a tornado. Mobile homes are more likely to sustain damage (compared to a house) if struck by a tornado or strong winds.

- **Myth – It is safe to seek shelter from a tornado under an overpass.**

Truth – Overpasses are not a safe place to take shelter. They can funnel the wind flow and increase the strength of the wind. They do not provide protection from flying debris. In addition, parking your car under or near an overpass creates a hazard to other motorists trying to pass through the area. Virtual traffic jams have been created by motorists gathering under an overpass. See this link for overpass safety.

- **Myth – We should open our windows if a tornado approaches.**

Truth – Stay away from windows if a tornado approaches. If your windows are closed, leave them closed. Your house will not explode due to the decrease in pressure within the tornado. If the tornado is close enough to your house that it experiences a significant and rapid drop in pressure, chances are the wind and debris will have damaged or destroyed your house before the minimum drop in pressure occurred.

We want your storm photos!!

If you have any storm photos or videos that you would like to share with us, please e-mail them to your local NWS. Include your name, date of the photo, where the photo was taken, and a description of the photo. Also indicate if you give the NWS permission to use the photo. We are interested in ALL weather phenomenon and cloud types. The best photos or videos are those taken which show a wide view of thunderstorm structure. Close-ups are good, but they do not allow others to take in the bigger picture (no pun intended). It is this wider perspective that allows others to learn by seeing the structure of a specific phenomenon relative to that of the entire thunderstorm.

Thank you for attending our spotter class!

If you would like to expand upon your experience, please consider taking the online spotter test. After completing the test, a certificate of completion will be available

http://www.srh.noaa.gov/tae/?n=spotter_test